The Magazine For Hewlett-Packard Enterprise Computing

HP Professional

APRIL 1997

HP-UX

Windows NT

MPE/iX

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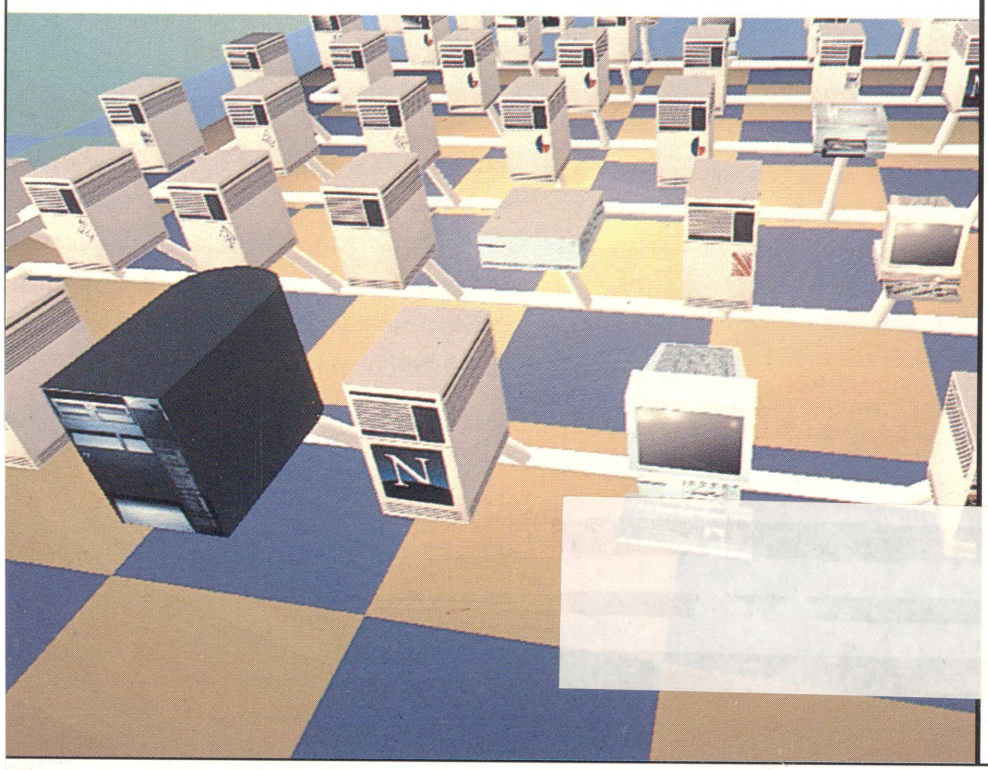
SYSTEMS & NETWORK MANAGEMENT

The Next Move In Enterprise Management

Enterprise management solutions are getting Web-enabled. Network and system management vendors are making their moves. It could be a good gambit. Or, it could be checkmate. Either way, the next move is yours. **PAGE 23**

One World Is Enough For All Of Us

Don't become a pawn in the enterprise management game. Common sense dictates that it's possible to win with a single comprehensive solution. You just need to do the most with the game pieces you already have. **PAGE 29**



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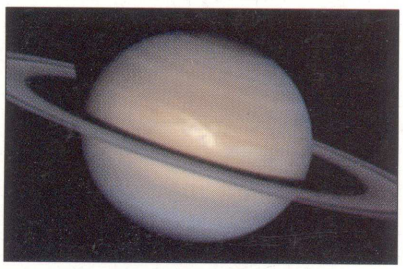

- Research Systems Inc.'s IDL 5.0
- V-One Corp.'s SmartWall
- SunSoft's Java Workshop

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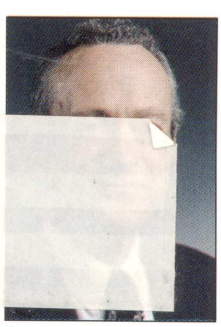
Strategic Directions

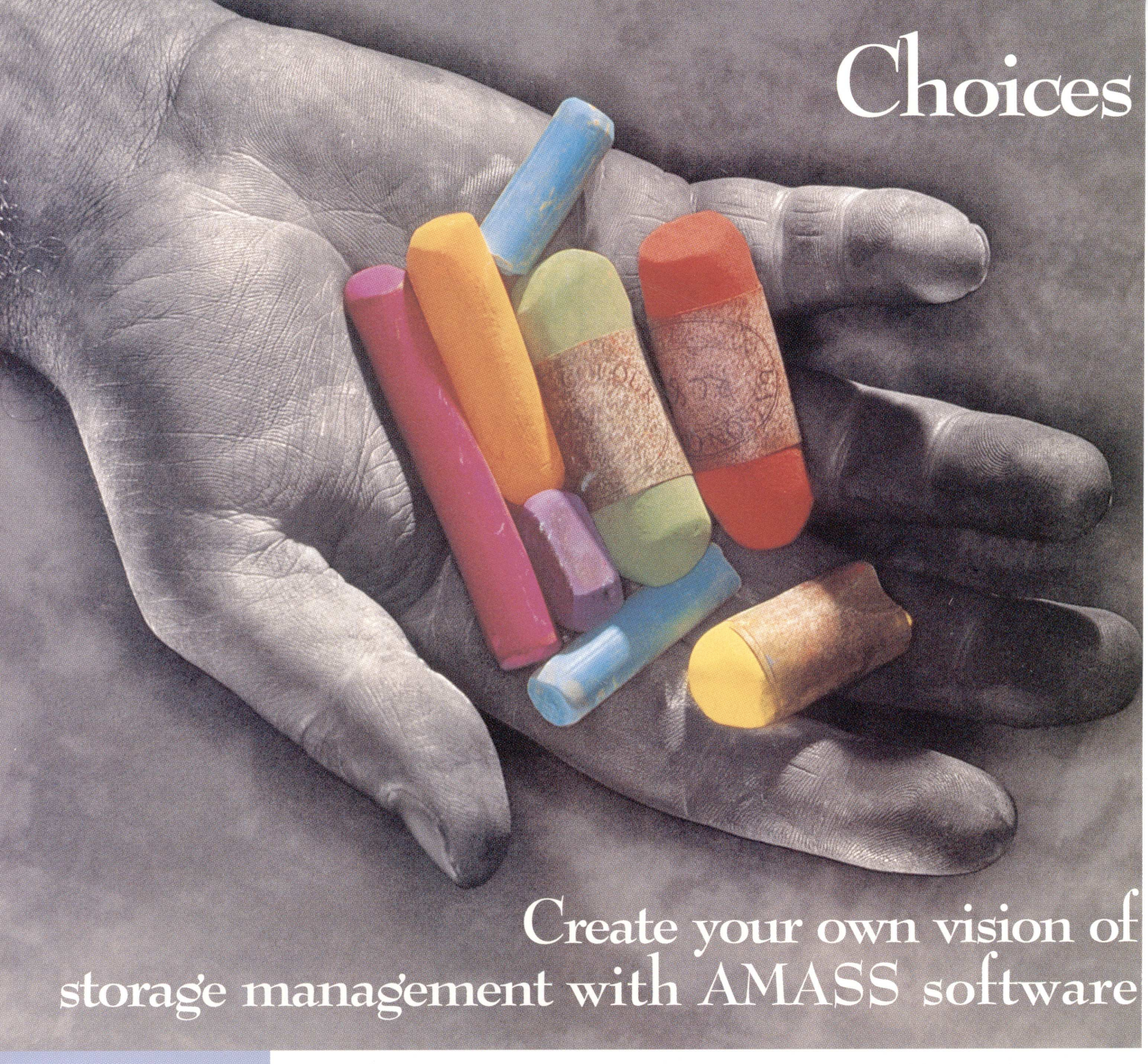
Micom Communications Corp.

"In two or three years, it will be an exception where people don't consider voice, data and fax over the same network." **PAGE 20**



Ken Guy

VP of Strategy, Micom Communications Corp.



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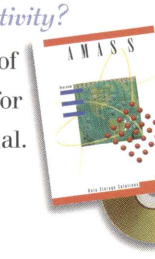

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By Greg Barnes

The problems addressed in this article can't be addressed by any one vendor. HP could provide a bundled NMS, but they haven't. In the meantime, complex and multiplatform networks requiring large numbers of well-trained support personnel are contributing to the delinquency of network managers.

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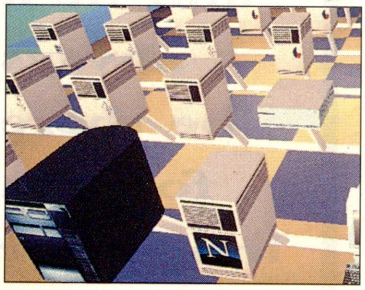

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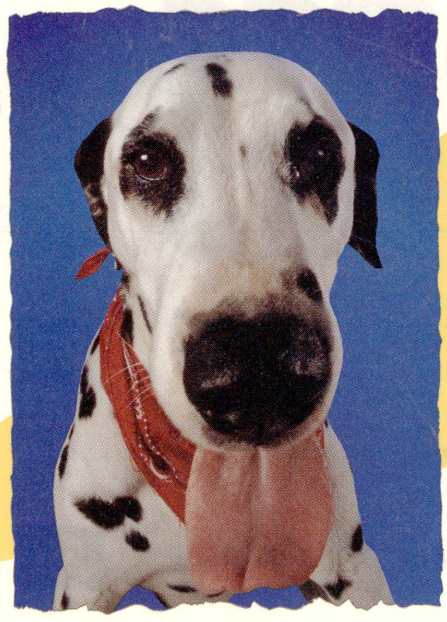

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EDITOR-IN-CHIEF Charlie Simpson
simpsoncm@cardinal.com
SENIOR EDITOR George A. Thompson
thompsonga@cardinal.com
ASSOCIATE EDITOR Deborah Schwartz
schwartzdr@cardinal.com

INTERNATIONAL EDITIONS EDITOR Karine Simpson

COLUMNISTS
INTERNET Mark McFadden
NETWORK MANAGEMENT Greg Barnes
UNIX Fred Mallett

CONTRIBUTING AUTHORS David Acord, Glenn Jacobson, Beth Miller, Jon William Toigo

DESIGN & PRODUCTION
EXECUTIVE DESIGN DIRECTOR Leslie A. Caruso
ART DIRECTOR Al Feuerstein
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PRODUCTION MANAGER FOR HP PROFESSIONAL, CARD DECKS, & ONLINE ADVERTISING Linda Hall

CIRCULATION
CIRCULATION DIRECTOR Carrie Eisenhandler
DIRECTOR OF FULFILLMENT Margie Pitrone
pitronemf@cardinal.com

MARKETING
PROMOTIONS DIRECTOR Timothy M. Kraft
MARKETING MANAGER Amy Wauhop
SENIOR GRAPHIC DESIGNER Christine Piatkowski
GRAPHIC DESIGNERS Mark Broomell, Candace Kent, Patty Wall

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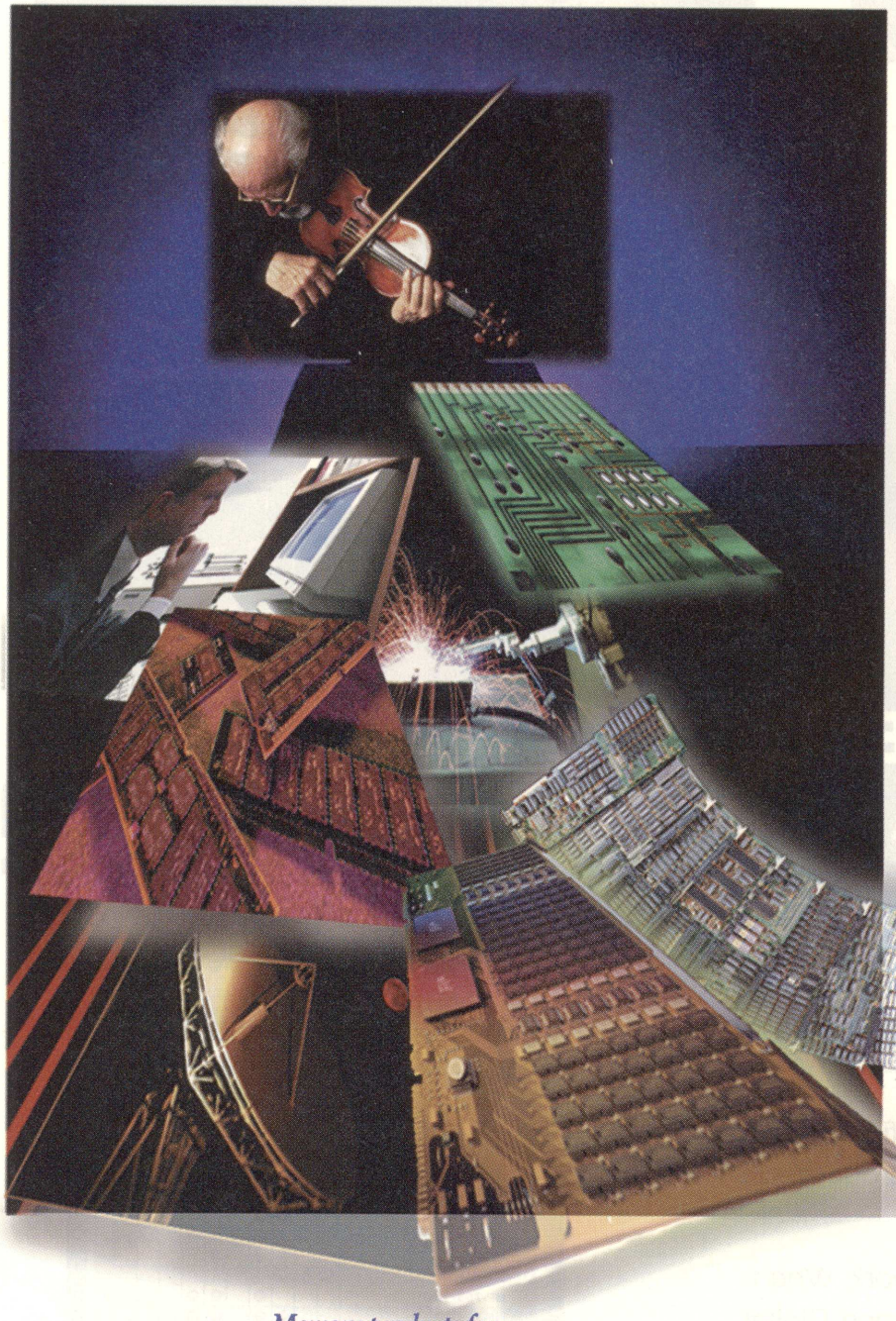

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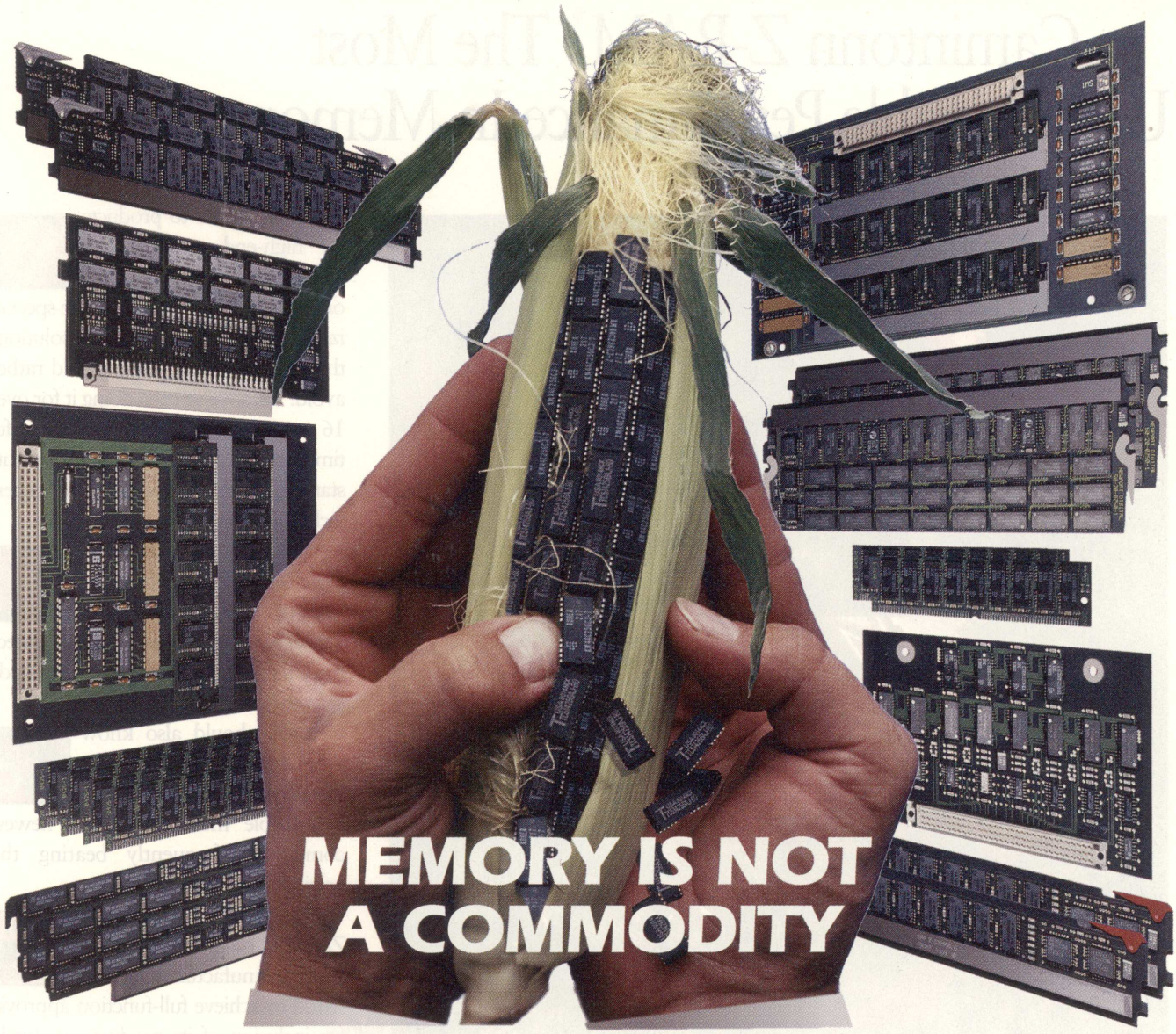

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So Who Does Windows Anyway?

Charlie Simpson
simpsoncm@cardinal.com

It seems like just yesterday when a scrappy HP drew a line in the sand, and endorsed UNIX as *the operating system* for today and tomorrow. Refusing to sully their lips on Microsoft's rump, HP, like Sun today, wouldn't knuckle under. Then came the potential dollar signs flashing and suddenly, well, NT "twern't so bad" after all. And the inevitable statement crossed the lips of HP: "If our customers want it — we'll support it."

To cement the HP-NT sell-out, Lew Platt and Bill Gates staged a press conference a la Digital's Bobbie Palmer/Willie G. dog and pony shows of 1996. In Cupertino, on March 19, Platt and Gates announced a three-point "Simplified Enterprise Computing" strategy. To support that strategy, the companies introduced: a series of products, services and programs to address the Total Cost of Ownership (TCO); further collaboration on Windows NT-based solutions; and provide solutions for heterogeneous environments.

According to Platt, "This powerful combination will make HP the leader in Windows NT, UNIX systems and heterogeneous enterprise solutions." Hmmmmm. All things to all people. Wasn't that Digital's motto at one time? Platt believes that HP's $32 billion organization can implement a UNIX and NT strategy better than its "smaller" competitors such as Compaq and Sun. And of course, they agreed that everyone agreed that everyone involved was very "excited" about being involved with everyone who is involved.

A STRATEGY FOR ALL SEASONS

So what exactly is HP's NT strategy? During an exclusive interview with *HP Professional*, David Birnbaum, program manager for HP's new Colliance Program, whose mission is "to bring down the barriers of UNIX and Windows NT integration" (see Industry Watch, page 7), said, "The days of believing that NT will go away are past. HP has accepted that NT is a viable solution." He also said this latest technology change was similar to when HP shifted its emphasis from proprietary MPE to open, "client-server" computing, specifically HP-UX and the HP 9000.

As part of the Colliance Program, Russ McBrien, HP's worldwide Wintel and UNIX Integration Alliance Services manager for the PSO, tells us that HP's PSO and WSCO will now offer UNIX-to-NT consulting and integration, as well as service and support. When comparing HP's offering to its competition, namely Digital, McBrien says HP's strength will be realized in its ability to handle multiplatform environments and not necessarily who handles NT better. Birnbaum maintains that Digital, unlike HP, has no security or management solutions to offer when addressing UNIX and NT integration.

Today, the vast majority of users still use NT as a printer and file server manager with some actually moving NT out into the enterprise. In a recent *HP Professional* migration survey, 68 percent of our readers currently use HP-UX as their key operating system. And 58 percent indicated that it would remain so in the next year. Only 17 percent saw MPE/iX as key. Yet 65 percent predicted NT will be their key operating system at their site in the next year.

Frankly I'm disappointed, if not a bit nauseated at HP's apparent capitulation. I guess Bill "showed them the money." But hey, that's business. At least HP's investors should be happy. But only time will tell if everyone will be as "excited" as Platt and Gates. What do you think?

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LETTERS

THE FAQS ABOUT DWEEBONICS

Just bought the new book from O'Reilly: *Mastering Regular Expressions* by Jeffrey E. F. Friedl.

The title implies that it is a primer for dweebs, to help the "technically gifted/socially challenged" with idiomatic English. You know, how to talk like a regular guy.

Turns out it's nothing but pattern matching: s/^★?.!$/, NFA, DFA and all that in egrep, awk, Python, emacs and Perl.

Master that book and even the dweebs will shy away from you at parties.

Tim Szeliga
Computer Specialist
National Weather Service

"Hooked On Dweebonics" is undoubtedly the best editorial you have *ever* written. I was entertained and enlightened. Only thing is .... it's a little bit too true.

Excellent work, keep it up!

Carolyn Aliotta
Marketing and Communications Manager
Camintonn Z-RAM

THEY'VE MOVED

Citrix Systems' address was listed incorrectly in the March 1997 issue. Their correct address is:
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INDUSTRY WATCH

George A. Thompson

HP LEADS IN RISC/UNIX

The Aberdeen Group (Boston, Mass.) named HP the leading vendor in the commercial RISC/UNIX system market. Aberdeen's research showed that HP has 52 percent of the commercial RISC/UNIX system market. It's the seventh year in a row that HP has won that particular distinction.

NOW IT'S U-NT-IX

"UNIX and NT is what we can deliver to customers." Does it get any clearer? In early March, with those words, HP introduced the Colliance Program to do just that. Colliance is HP's attempt to bring a "definite, renewed emphasis on ensuring that the NT platform is adequately serviced within the client-server space," says Russ McBrien, HP's worldwide program manager with the Wintel and UNIX Integration Program.

The Colliance Program is intended be a three-tiered approach: services, technologies and HP partners are provided in combination to IT organizations in the financial services, manufacturing and telecom industries. Services include consulting and education available from HP's Professional Services Organization (PSO), as well as customer support from HP's Worldwide Support Organization (WCSO). Technology areas include management, security, messaging, application development, connectivity and the Internet. A list of HP Colliance partners was not available at press time.

HP-UX MEETS NDS

As part of the Colliance Program introduction, HP also announced that Novell's basic NetWare Directory Service (NDS) will be bundled with HP-UX 10.20. "It will help customers integrate a large systems environment across multiple physical domains," says David Birnbaum, program manager for HP's Colliance Program.

NDS also is compatible with Netscape's Lightweight Directory Access Protocol (LDAP), which will help those with Internet integration problems. "It's available to our installed base of HP-UX 10.20 users and free of charge on a retroactive basis," says Birnbaum. That's fine for Novell and HP-UX users. But what about NT you might ask? Novell plans to have NDS capabilities running on NT before the end of the calendar year.

NO TRAIN, NO GAIN

Have you ever felt that if it weren't for the people, technology transitions would be smoother? Well, it turns out, you were right. Here's the proof: A research project, sponsored by HP's Education Services Practice and conducted by the Aberdeen Group (Boston, Mass.), indicated that the people- and process-related issues faced during technology transitions are far more challenging than is the technology itself.

One of the key findings of the research was that project leaders strongly believe that education and training cause people to move easily to new technologies. Conversely, they report that not using education will — best case — lead to an under-utilization of the new technology and — worst case — cause an outright rejection of the system by its intended users. "Almost everyone in the study said education did not go very well," says Morris Wallack, marketing manager for HP Professional Services Organization's Worldwide Education Services Practice. "As the pressure to get the technology implemented increases, education or end-user training decreases."

"Interviewees reported that they learn from one project and try to get education into the next project, but funding and time are always cut out as it is difficult to communicate the effect of a smaller budget on a project outcome," says Susan Irving, senior analyst with the Professional Services Research division of the Aberdeen Group. The survey took place during October and November 1996 involving 14 one-on-one, in-depth interviews with key project leaders and decision-makers undergoing or completing major technology transitions in large enterprises.

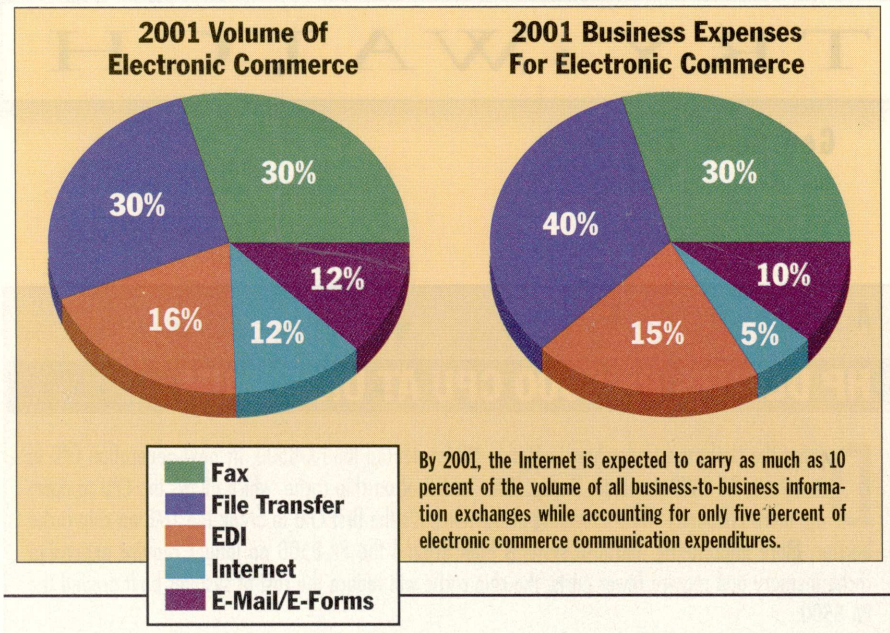
AT PRESS

HP DEBUTS PA-8500 CPU AT UNIFORUM

During the Uniforum trade show in March, HP introduced the PA-8500, its next-generation CPU in its 64-bit, PA-8000 processor lineup. With 1.5MB of on-chip cache, which allows the CPU to operate more efficiently while executing instructions, it's the first CPU to break the 1MB on-chip cache barrier. More importantly, because systems built around the PA-8500 no longer require expensive cache memory and require fewer parts, the chip cache will reduce the cost of systems built around the PA-8500.

Like the PA-8000 and the PA-8200, the PA-8500 is a 64-bit microprocessor with multiprocessing capabilities, branch prediction and four-way out-of-order execution. The new chip is the company's first to use a .25-micron process and more than 120 million transistors.

New systems using the PA-8500 are expected within 18 months.



By 2001, the Internet is expected to carry as much as 10 percent of the volume of all business-to-business information exchanges while accounting for only five percent of electronic commerce communication expenditures.

Further findings revealed that, although project managers strongly believe in the value of education to the success of their project, they rarely use traditional return-on-investment methods to demonstrate this to senior management. Instead, the business case for technology change is often built around a conservative cost-reduction scenario in which educational investments are seen as cutting into the overall project savings.

HP NETSERVER LD PRO 6/200

HP announced the availability of the HP NetServer LD Pro 6/200 system to complement the HP NetServer LD Pro 6/180 system. The HP NetServer LD Pro system is a corporate workgroup PC server that gives small- and medium-sized workgroups the same levels of performance, high availability and manageability formerly found only in midrange to high-end PC servers. The units are scheduled to begin shipping worldwide on April 1.

NEW GENERATION OF E SERIES NETSERVERS

With two new software additions — a Web interface and a remote console — HP announced the second-generation of its HP NetServer E Series PC-based servers. By combining these solutions into an overall remote-support program aimed at resellers, HP is targeting business environments with little or no IT support. An HP NetServer E40 with a 200MHz Pentium Pro CPU, 32MB of ECC RAM and a 10/100BaseT LAN adapter has an estimated street price of about $2,629. The E40 began shipping worldwide on April 1.

READY AND WAITING FOR THE YEAR 2000

In March, HP announced that HP-UX is now Year 2000-ready. All customers with active support agreements can download patch updates that make HP-UX Versions 10.01 and newer versions Year 2000-ready. For customers without active support agreements, or those running older versions of HP-UX, you need to contact an HP sales rep on how to receive Year 2000-ready versions of HP-UX.

HP also announced Cure2000 which consists of a combination of products and services from HP Channel Partners that support a variety of implementation strategies for avoiding date-related system and application failures. For applications that are already serving business needs, HP is partnering with Year 2000 tool and service providers that will help customers update their applications, whether they are running on the HP 9000, HP 3000, mainframes or other proprietary systems.

For its part in the Year 2000 solution, HP intends to provide an extension to its Softbench integrated development environment. Softbench will aid in finding Year 2000 problems in business-critical applications on the HP 9000 Enterprise Servers, whether they are written in COBOL, C or C++. A specialized query tool is expected to be available for Softbench that will work with Softbench Static Analyzer to locate date-related code and then identify calls to and from that code and any related variables.

WE'RE READY, ALREADY

Companies involved with HP's Cure2000 solution:

Accelr8 Technology Corp.
Allegiant Legacy Solutions Inc.
Baan Company
Century Services Inc.
Comdisco Inc.
Compuware Corp.
Data Dimensions Inc.
EWO Software Inc.
Geac
HCL Consulting Ltd.
J.D. Edwards
i-Cube
Lawson Software
Micro Focus Inc.
Oracle Corp.
PeopleSoft Inc.
Platinum Technology Inc.
QAD
The Progeni Corp.
SAP AG
Software Emancipation Technology Inc.
System Software Associates Inc.

IMAGINE THERE'S NO ...

HP announced the first two Internet security products — the HP Praesidium/ImagineCard Corporate and HP Praesidium/ImagineCard Web — resulting from an alliance with Gemplus and Informix. The

ImagineCard Corporate solution establishes a digital signature that ensures proper identification while providing non-repudiation. The ImagineCard Corporate solution includes the Gemplus GMAP-Corp smart card.

The ImagineCard Web solution enables companies to issue customized smart cards to pre-registered customers, providing them with the ability to authenticate themselves for applications such as online purchasing, electronic banking and home training via the Internet. The ImagineCard Web solution uses the Gemplus GPK2000 smart card, which can perform a digital signature based on RSA 512 bits, a technology that virtually never creates the same digital signature twice. Both ImagineCard solutions include developer kits and deployment kits.

Both ImagineCard solutions will ship with the HP smart card management system and HP hardware consisting of an HP 9000 D-Class server running HP-UX 10.20 and an HP Vectra PC running Microsoft Windows 3.11, Windows 95 or Windows NT 4.0 Server. Also included are Gemplus cards, smart card readers and an Informix-OnLine Dynamic Server database. A card printer from DataCard and Entrust Technologies' public-key infrastructure complete the solution. Pricing for the ImagineCard solutions ranges from approximately $60 to $250 per user, depending on the number of user installations. ImagineCard solutions began shipping on April 1.

HP INKJET BUSINESS UNIT CHOOSES GENTIA

HP's Inkjet Supplies Business Unit (Corvallis, Ore.) has chosen Planning Sciences Inc.'s (London, United Kingdom) Gentia which will be used to report and compare metrics within and between its production sites. The solution will also be used for building HP's decision support/EIS applications for the planning, forecasting and manufacturing functions. HP's Inkjet Supplies Business Unit designs, manufactures and markets inkjet supplies for use in inkjet printing devices.

GROWING PAINS

Not surprisingly, Internet service and computer networking businesses grew the most in 1996. That's according to the *1996 Business Changes Report*, published by the Market Research Division of American Business Information (Omaha, Neb.). There's no doubt that 1996 was the "Year of the Web" which most likely influenced the growth in the market for computer networking businesses. And an increasingly mobile population led to the expansion of pager and cellular telephone services. However, the digerati must be hungry because new bagel shops increased 31 percent. As for the growth in tattoo parlors, one can only guess that it's those new Microsoft employees getting MS logos emblazoned on their chests.

High Growth Business in 1996

	# of Businesses in 1995	# of Businesses in 1996	% Change
Internet Service	24	2,298	9,475%
Computers — Networking	4,539	6,573	44.8%
Pager Services	1,636	2,148	31.3%
Bagel Shops	2,522	3,291	30.5%
Cellular Telephone Services	4,307	5,253	30.1%
Tattoo Parlors	2,156	2,569	19.2%

SCO AND HP DELIVER API TO OPEN GROUP

HP and SCO have submitted their API specification for the next-generation UNIX system technologies that they are co-developing to The Open Group. This effort will ensure compatibility for existing HP-UX and SCO UnixWare and SCO OpenServer applications as customers move to the new Intel IA-64 architecture (beginning with the Merced processor). The API specification which converges selected APIs from HP-UX, SCO UnixWare and SCO OpenServer Systems is built upon, and complementary to, The Open Group's Single UNIX Specification.

Both companies will continue to adhere to The Open Group's Single UNIX Specification and are committed to obtaining the UNIX brand for their future operating system releases. The completed core specification includes more than 4,200 interfaces, and will provide end users with access to more than 30,000 applications. It also provides application developers with the information they need to plan a smooth transition to 64-bit Merced-based UNIX systems. The completed specification encompasses industry-standard interfaces and definitions for next-generation UNIX operating systems, including UNIX 95, 64-bit extensions, DCE, X11, Motif, POSIX 1x, NCEG Math Libraries, XPG 4.2 and emerging standards, as well as network, graphics, management and Internet services.

WWW.HP.COM/GO/ VECTRACORPORATE

To help simplify cost and planning analysis for PC ownership costs, HP introduced a new tool on its Web site that lets MIS staff enter the specifications of their IT environments to create an estimate of potential operating-cost reductions.

TODAY

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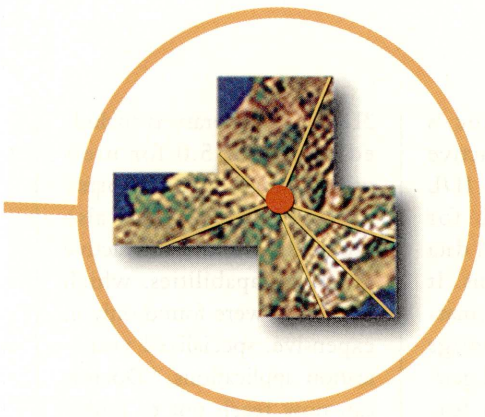
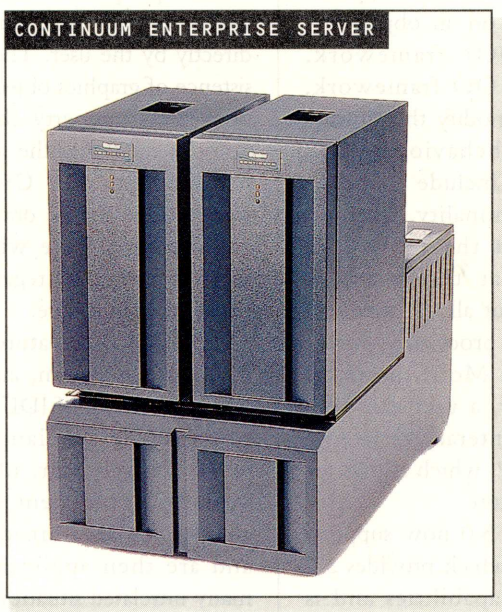


If a piece of your network is unavailable you are losing business, revenue, and customers! You have to know what's going on out there and your ***management system must be Continuously Available.***



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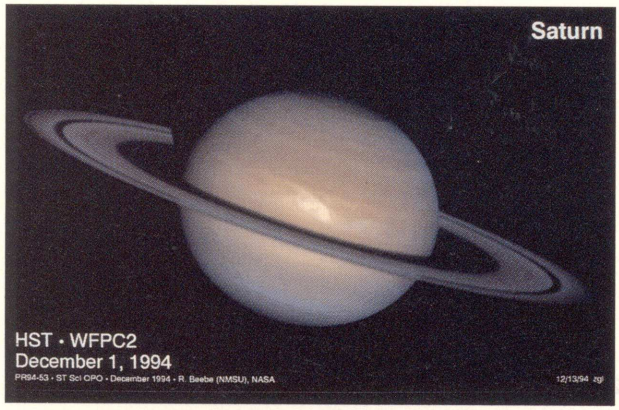
CIRCLE 159 ON READER CARD

The Language Of Development



IDL 5.0

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CIRCLE 351 ON READER CARD

CTI PET Systems Inc. (Knoxville, Tenn.) provides ECAPP (Clinical Applications Programming Package) with Positron Emission Tomography (PET) scanners. In layman's terms, this means doctors can see graphical displays of clinical images — for example, a brain scan. According to John Trefferd, manager of computer engineering at CTI PET Systems, ECAPP is being developed using IDL Version 4 on HP 9000 workstations running HP-UX; Sun SPARCstation 20s running SunOS and Solaris; as well as Silicon Graphics systems. Although ECAPP is currently only shipping for Sun systems, Trefferd notes that other systems are being tested.

ECAPP is based on Research Systems Inc.'s (Boulder, Colo.) Interactive Data Language (IDL). IDL version 5.0 is a 4GL for building data analysis and data visualization applications. It includes a suite of mathematics, statistics, graphics, image processing, mapping and general data manipulation features. Prior to version 5.0, IDL users had to learn the language syntax and write IDL code to build data analysis and visualization applications. CTI PET Systems is currently a beta user of IDL version 5.0.

Version 5.0 features a prebuilt GUI, called IDL Insight, which is an application based on an object-oriented (OO) framework. With the OO framework, users can modify the appearance and behavior of IDL Insight to include user-specific functionality. Trefferd notes that there are IDL modules at the heart of ECAPP, but all the user sees is a list of processing protocols and a Motif interface. Optionally, a user can purchase an interactive license for ECAPP, which allows for customization.

Version 5.0 now supports OpenGL, which provides 3D graphics capabilities and is expected to become an industry standard. The Mesa 3D graphics library is included with IDL 5.0 for users with systems not supported by OpenGL. IDL 5.0 also provides advanced interactive graphics capabilities, which until now were found only in expensive, specialized visualization applications. "Doctors can now reach out to multiple forms of imaging at once," says Trefferd. "For example, displaying a PET function over an MRI [magneto-resonance imaging] to see anatomical and physiological views simultaneously."

With IDL 5.0, plots, surfaces and images are represented as persistent objects whose properties may be defined and manipulated directly by the user. The persistence of graphics objects lets users make property changes without recreating the graphics procedurally. Graphic objects also may be drawn to any graphic device without the user having to regenerate them for each device.

IDL 5.0 also features the IDL Object System, an OO implementation of IDL functionality at the language level. To the user, objects provide a consistent set of abilities that are learned once and are then applicable in many unrelated situations.

—Deborah Schwartz, Associate Editor

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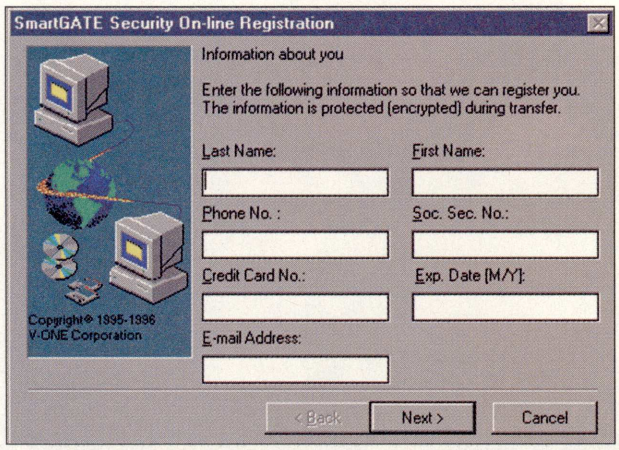
CIRCLE 302 ON READER CARD

A SmartWalled Network



SMARTWALL

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- Manages multiple, interlocked SmartWalls through a centralized management capability
- Available for HP-UX 10.x, BSDI V2.1 UNIX and SunOS 4.1.x

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CIRCLE 354 ON READER CARD

With the expanding use of intranets and the Internet for electronic commerce, encountering fraud online is inevitable. V-One Corp.'s (Rockville, Md.) SmartWall helps reduce the risk of a network security breach. SmartWall is an dual-homed application-level gateway firewall using mutual authentication for security and encryption for remote access and administration of multiple firewalls and networks. A dual-homed gateway is a system that has two or more network interfaces, each of which is connected to a different network. In firewall configurations, a dual-homed gateway usually acts to block or filter some or all of the traffic trying to pass between the networks.

SmartWall combines firewall and smart card technology to secure your network and provide access control to your internal systems. Mutual authentication, session encryption and secure Telnet features block spoofing and other forms of access from unauthorized users.

SmartWall incorporates a challenge response system, using one-time password tokens, to verify the authenticity of a user before access is granted. Proxies are automatically engaged when a session is initiated and remain transparent to applications and end-users throughout the session. Internal IP security hides all internal addresses so outbound traffic appears to originate from a single address. Additionally, firewall-to-firewall encryption provides a secure tunnel from one location to another over the Internet.

It supports multiple authentication algorithms, including SecurID, SNK, FORTEZZA, smart card and S/Key (MD5). Standards compliance ensures compatibility with DES and other authentication technologies. It also supports the following network/application gateways: Telnet, ftp, SMTP, NNTP, Rlogin, Oracle, Secure Telnet, http, Smart http, Gopher, X11, Lotus Notes and PC Anywhere.

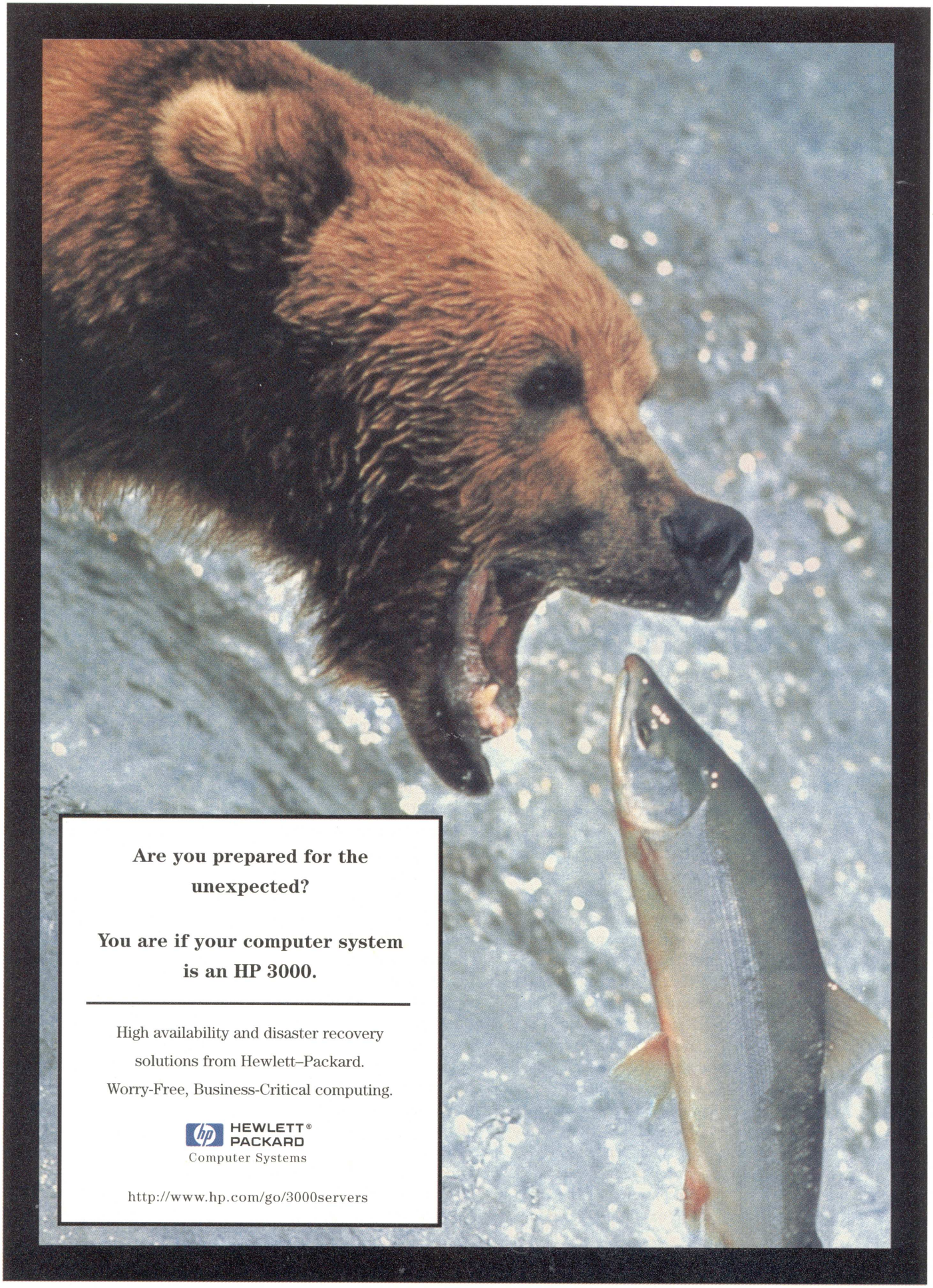
SmartWall supports up to three network interfaces and isolates each to provide additional security. A generic proxy or Plug-GW provides a pass-through TCP/IP service to permit generic connections for applications like NTTP. And remote administration and configuration using a Web-based interface, network topology, protocols and applications can be remotely configured for authentication and access.

Multiple, interlocked SmartWalls are managed through a centralized management capability. A GUI enables easy configuration, management and customization of the rule set for specific areas.

Activity logging and reporting of all traffic details systems activity. Event notification and real-time monitoring provides instant notification for any unusual activity or potential compromise. A secure e-mail log-in offers increased security through remote log-in.

SmartWall is available for HP-UX 10.x, BSDI V2.1 UNIX and SunOS 4.1.x. International and domestic versions are available.

—Deborah Schwartz, Associate Editor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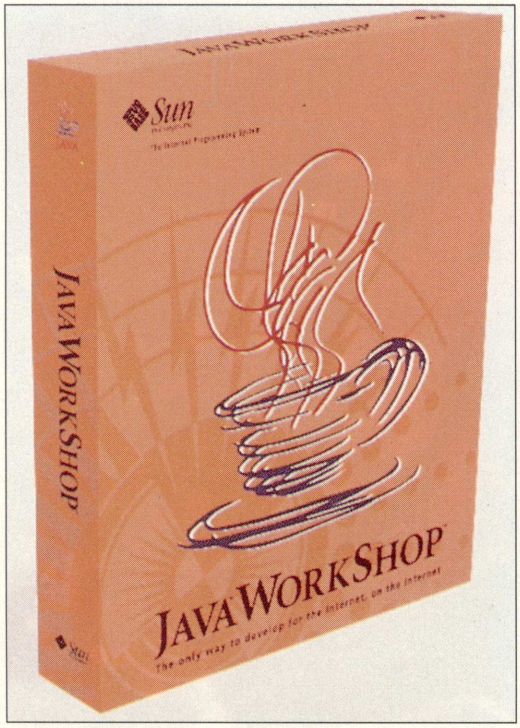

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CIRCLE 352 ON READER CARD

Looking for a recipe for success? First, invent an incredibly popular programming language. Then, introduce an easy-to-understand development tool that allows everyone from programmers to educators to use the language. That seems to be the plan for SunSoft Inc. (Menlo Park, Calif.). The company began with the Java language and has now unveiled Java Workshop, a toolset for creating intranet and Internet applications and Web pages.

Java Workshop is written entirely in Java, which makes it the first complete Java development environment on the market. It is also a completely Web-centric development tool: the user interface is a Web browser. After starting Java Workshop, the user is presented with a Web page, complete with controls, Web browser buttons and a toolbar. To use a tool, click on an icon. Each icon in the toolbar is actually a Java applet. Also, a "flyover help" feature identifies each tool as the cursor passes over its icon.

What exactly can pros and novices do with Java Workshop? Users can start from the ground up and construct an entire Web page. Individual applets can also be created quickly. Animated demos, simple games and interactive applications can be designed, edited, debugged and published over the Internet using Java Workshop.

Steve Rogers, vice president of Online Services at American Recordings (Burbank, Calif.), used Java Workshop to enhance and enliven pre-existing Web pages. Rogers oversees the design and content of American Recording's Web site. He and his staff seek to create eclectic, nontraditional pages that will challenge — even puzzle — the user. Rogers, who runs Java Workshop on two SPARC 10s, uses it to amplify Web pages. Not only was Java Workshop easy to use, but Rogers says he found it amazingly simple to install and get up and running.

Users also will be able to create, edit and publish applications with the package. The process unfolds step-by-step: start a project with the Project Manager; create source files using Source Editor; run the applet with the Applet tester; use the Debugger to fix any problems; and, finally, publish with Portfolio Manager.

In addition to the browser interface and flyover help, Java Workshop also has many other additional features, including a GUI builder and the Source Editor, which allows the user to write and view Java source code, as well as copy and paste Java applets into HTML code. Because Workshop is written entirely in Java, it can run on Java virtual machines. Applets created using Java Workshop run on almost any client (PCs, workstations and Web browsers) without requiring code changes.

Java Workshop costs $295 for a single-user license and runs on Solaris, Windows 95 and Windows NT. The next release, scheduled for early this year, will support Macintosh. Also a subscription product, this first release includes free updates for a year from the date of purchase.

— David Acord, Contributing Author

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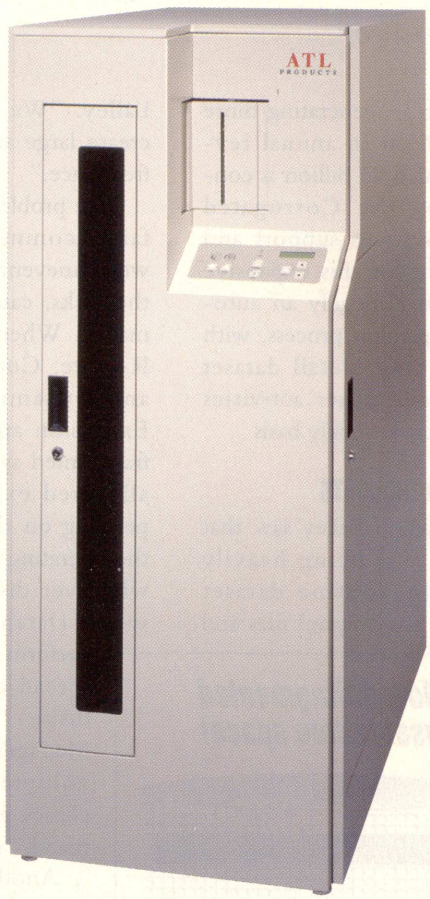

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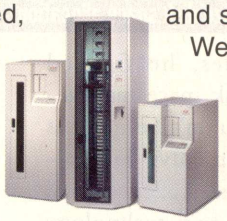

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CIRCLE 241 ON READER CARD

IN sites

Case Study Solutions

Just A Stone's Throw To Piecing A Database Together

Stone Container Optimizes Database Management With Bradmark's Disk Space Manager

Beth Miller

Do you know where your production database and other files are tonight? On which disks? In how many pieces? Craig Lalley of Stone Container (Chicago, Ill.) did. As former senior systems programmer for the company's Corrugated Division, Lalley was responsible for managing a multitude of computers and operating systems, along with the Goliath-sized projects they are programmed to perform. For Lalley and his colleagues, optimizing systems performance and efficiency is always critical.

With more than 30,000 workers and 60 plants in 83 locations across the country, Stone Container must take a proactive approach to solving its database and file management performance issues. The company also operates plants in Australia, Europe, Honduras and Puerto Rico — generating more than $7 billion in annual revenue, of which $3 billion is contributed by the Corrugated Division. Systems support and maintenance for this expansive organization is largely an automated and painless process, with house cleaning, detail dataset repacking and other activities performed on a weekly basis

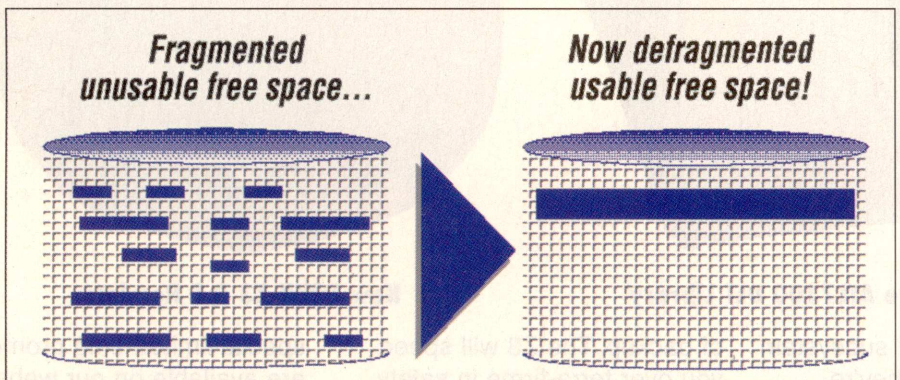
FRAGMENTED THOUGHTS

However, when Lalley saw that disk space was being heavily allocated by routine dataset expansions, active spool files and system log files, he figured resolving his disk space management issues wouldn't be quite as simple. To help solve his volumeset overruns, Lalley turned to the database tool technology of Bradmark Inc. (Houston, Texas) and its Disk Space Manager (DSM). "When disk space runs low, it tends to become really fragmented," says Lalley. "We needed a way to create large areas of contiguous free space."

The problem Lalley faced is a fairly common one; his files were unevenly allocated among the disks, causing poor performance. Whenever tasks such as Restore, Copy, Build, DButil and Dynamic Detail Dataset Expansion are performed on a fragmented system, disk space is allocated exponentially. Depending on the free disk space, the operating system places a file wherever disks have available space. Database files typically perform much better when spread evenly among the disks. "With Disk Space Manager, we can manage volumesets and volume classes with a single command," says Lalley.

Another space problem Stone Container faced was the inability to complete a system update. "To create free space on LDEV1, we were actually cutting the tape and unloading stuff from the machine to make sure we had enough space to perform the update correctly," explains Lalley. "With Bradmark's Disk Space Manager, we accomplish this task in a few short key strokes."

Before Disk Space Manager, Lalley manually identified the cause and location of performance bottlenecks in each of his



Disk Space Manager's 20 commands help users manage and optimize disk space allocation.

systems by doing a complex, time-consuming file report. "We eliminated the manual processes altogether using Disk Space Manager's automated features," says Lalley.

FINDING AN ANSWER

At the time Lalley began looking for a tool to solve his disk space fragmentation, there were few products available. Bradmark's DSM, developed by Paul Wang's SolutionSoft Systems, was among the first. "We reviewed the few products on the market and simply felt that the intelligence behind Bradmark's product was superior," says Lalley.

Within DSM's slate of key features are 20 commands available to help users manage and optimize disk space allocation. Of those commands, three are frequently used by Lalley to help enhance Stone Container's database efficiency and disk space utility. "ManageSet and PopulateSet have been two of our favorite commands," he says. According to Lalley, the ManageSet command accomplishes all the things the defragmentor does in one fell swoop. ManageSet trims a system's files, returning any unused space to the operating system and consolidates them concurrently — spreading all small, large and medium-sized files — then defragmenting the system.

Lalley says DSM's PopulateSet command is especially helpful when adding a new disk drive. "With this command, I can easily populate our new volume so we don't get any bottlenecks in the system," he says. Lalley's future projects at Stone Container include a roll out of several new SCSI drives. He plans to make DSM a vital part of the roll out. "If you've been in the business long enough, you know which tools you can rely on," he points out. "Disk Space Manager is one of those. While it sits in the background, you always know it's there. You can depend on it. For me, it's in a category by itself."

Bradmark Inc. can be reached at 4265 San Felipe, Ste. 800, Houston, TX 77027; (800) 621-2808; nsales@mail.bradmark.com; www.bradmark.com.

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CIRCLE 290 ON READER CARD

In Good Voice And That's A Fax

Micom Communications Corp. Provides Data, Voice And Fax Network Connections.

"We can walk into any Cisco, Bay or 3Com network and give voice to it."

Ken Guy
Vice President of Strategy
Micom Communications Corp.

Take some data. Mix with fax. Then add some voice. Toss with a good portion of LAN/WAN traffic. In the internetworking market, it's a recipe that spells success for Micom Communications Corp. (Simi Valley, Calif.), a relatively new subsidiary of Northern Telecom (Nortel; Brampton, Ontario). "We got our start supplying remote access [devices] for Digital Equipment [and then HP] minicomputer users," recalls Ken Guy, Micom's vice president of strategy. That was in 1973, when Micom was a private company — the first time.

By 1993, when Nortel acquired Micom, the company had been taken public (in 1983) and taken private again (in 1988). Despite the ownership changes, Micom stuck resolutely to its mission: to reduce remote communication costs. Now, Micom has refined their corporate goal: "instead of just focusing on data, we've added voice, fax and any LAN/WAN traffic," says Guy.

Micom also sells voice/fax-to-data connections for its corporate parent Nortel ($10.7 billion in 1996 revenues). That now gives Micom customers a broader product line. For example, Micom sells Nortel's Rapport, an ISDN router, and Passport, an ATM switch.

"When we added the voice component in 1991 [to our Marathon and NetRunner products], we found that worldwide, we had tremendous appeal." Here's why: the payback perspective. According to Guy, the cost savings are about $10,000 per remote site over a five year life of a network. Such cost savings are especially appealing in international markets where companies do not benefit from favorable long distance rates like large U.S. companies.

For example, Micom has teamed up with HP in Germany by using HP equipment for the processing and Micom equipment for the communications. The German Social Security Administration is adding voice to what was previously only a data network. "It's been very successful for HP and Micom," says Guy.

In September 1996, Micom introduced their V/IP product, which adds voice and fax to IP networks. "We can walk into any Cisco, Bay or 3Com network and give voice to it," says Guy. But he cautions that "you don't need a Web application to run this." In October 1996, Micom announced its ClearVoice technology which has been rated by an independent testing facility as better than toll or long-distance quality. Now, "everyone wants to know what's happening with packet voice."

IP networks will therefore be a major thrust for Micom in 1997. For example, Micom is developing V/IP to be used as hop-on/hop-off gateways for Internet Service Providers (ISP). "It's a way to put the ISPs in the phone business," predicts Guy. A local ISP could provide a long-distance phone connection with toll quality voice over an Internet connection. "As one of the five founding members of the Voice Over IP Forum, we're working with Microsoft to standardize conferencing and voice technologies that go between a PC client and a hop-off gateway," says Guy.

According to IDC, Micom has over 40 percent of the market for combining voice and data on relatively low speed lines (T1/E1). Going forward, Guy remains sanguine, "In two or three years, it will be an exception where people don't consider voice and fax over the same network."

—George A. Thompson, Senior Editor

Micom Communications Corp.
4100 Los Angeles Ave.
Simi Valley, CA 93063
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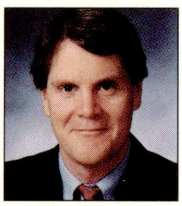

"With 'desired state' management, you don't just see devices, but how they affect one another."

Stephen Lafferty
Director of Product Management
Sterling Software

Sterling Software
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Reston, VA 20191
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CIRCLE 353 ON READER CARD

Imagine a screen that depicts the activity of all your network components. Buttons flicker green and red indicating the status of each device. But, is a green light good and a red light bad?

According to Stephen Lafferty, director of product management with the Operations Management Division (OMD)of Sterling Software (Reston, Va.), simply knowing whether a router, printer or application is on or off is just not informative enough anymore. So, Sterling Software is trying to gain market share by taking network and systems management one step further with an approach called "desired state" management.

With "desired state," a status light will be green if the desired state equals the actual state. For example, if a specific printer is critical to an accounting function from 1 p.m. to 2 p.m. on the first Monday of each month and it's active during that time, the status light would be green. But, the light would also be green from 2 p.m. to 3 p.m., even though that printer is inactive.

In February, Sterling Software's portfolio of 100 applications, installed at more than 20,000 sites worldwide, increased by two with the introduction of new "desired state" products — SOLVE: Operations for OpenView and SOLVE:Operations for NetView/AIX ($15,000 to $35,000 per installed copy, depending on the implementation).

"[SOLVE:Operations] enables [the user] to identify their most critical apps first and handle them," says Lafferty. "It helps administrators determine which devices are important when, as well as helping them establish a priority list. And in today's distributed environments, you can't afford to guess wrong."

According to Mike Kahn, CEO of the Clipper Group (Wellesley, Mass.), a research firm, the information provided by SOLVE:Operations answers the question: "What does this mean to my business and what should I do about it?" SOLVE:Operations was initially created in a mainframe environment, typically with MVS running over SNA networks.

With the OpenView and NetView integration, it can extend mainframe reliability as well as provide end-to-end management to distributed client-server environments. "It offers to UNIX corporations what was available for the S/390s," says Kahn, "and allows the S/390 to be viewed from the open side."

Sterling Software, founded in 1981, currently has 2,600 employees in 70 offices worldwide. And now, as an OpenView Premier Solutions Partner, they provide SOLVE: Operations for HP IT/ Operations. They also work closely with Tivoli to provide SOLVE:Operations for NetView.

According to Lafferty, SOLVE:Operations is not a replacement for other currently available management packages, and is not a diagnostic tool.

In fact, Lafferty cites BMC's Patrol and CiscoWorks Blue as complementary products. Kahn likens this network management scenario to a medical exam. "Doctor's still need to diagnose the situation. And the specialists still need all the facts. It just makes their job easier if they don't have to go down to the bottom level every time."

Kahn also believes more companies will follow the path that Sterling has taken. "The challenge is not to manage a network, but to be able to manage a business," concludes Kahn.

—Deborah Schwartz, Associate Editor

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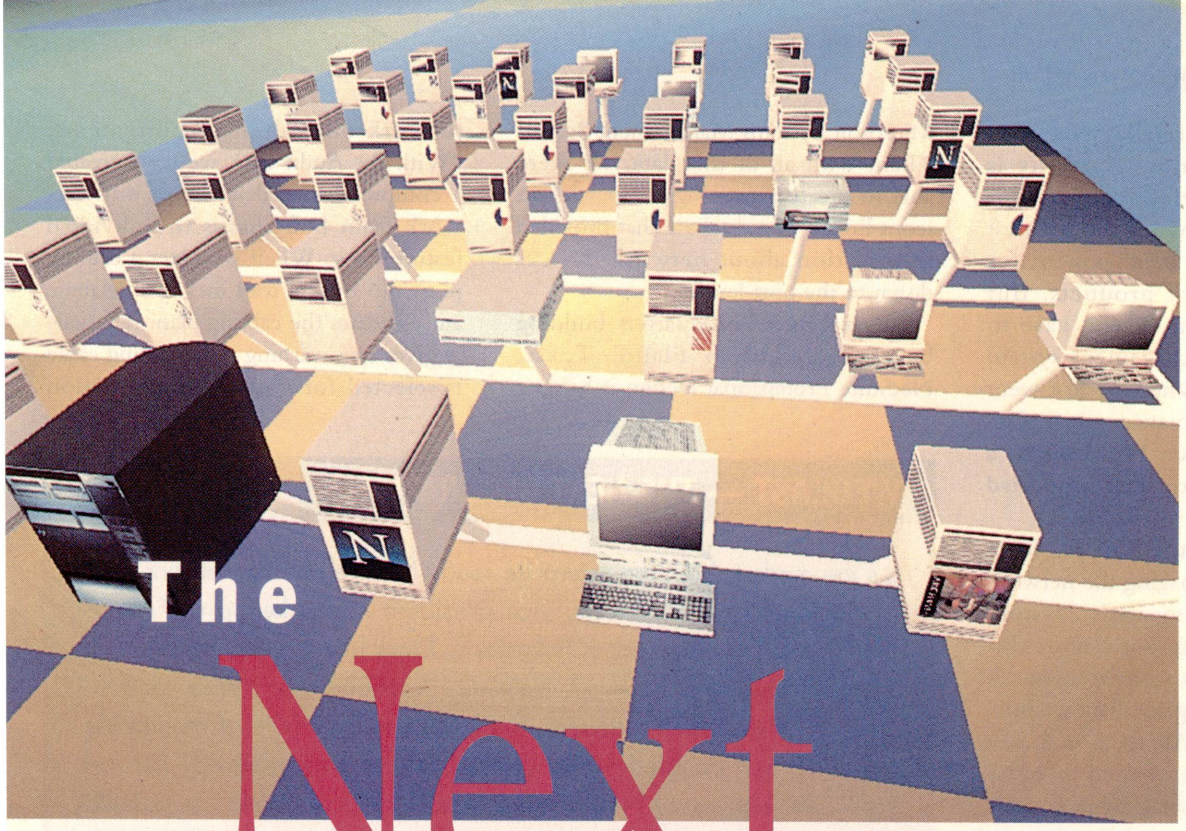

The Next Move

In Enterprise Management

Jon William Toigo

Terrance Davis, data communications engineer at Fina Oil and Chemical Company (Dallas, Texas), is officially a user of HP OpenView for Windows. He is also an official user of Optivity from Bay Networks (Santa Clara, Calif.). And Sun NetManager from Sun Microsystems (Mountain View, Calif.). And NetSuite Professional Design and NetSuite Professional Audit from NetSuite Development (Wyland, Mass.). And Network Health from Concord Communications (Marlboro, Mass.).

At first glance, Davis may appear to be a power user of network management utility software — or worse yet, a network management system software groupie, maniacally bent on collecting NMS software brands like a beer connoisseur collecting rare microbrew labels. In fact, Davis is a pragmatist in an imperfect world. He is bringing all of the tools that are needed to bear to support automated oil and chemical refinery operations, as well as end-user networking requirements for the company's headquarters-plus-seven-plant enterprise.

"We are a Wellfleet/Bay Networks shop," Davis explains. "Optivity is Bay's network device management package and it provides the greatest amount of remote management for Bay's own network products. But Optivity is a bolt-on — you have to have a network management system platform to run it. When we first went to buy a network management platform, we selected Sun NetManager, a UNIX-based platform that supported Optivity."

Davis says that the Sun platform worked well for managing the network deployed at the company's 21-story headquarters building, but a more distributed solution to support network management at company plant facilities was in the cards. "About a year ago, we decided that we wanted to put a [remote] network management console in each of our seven plants for our onsite engineers to use. We didn't want all of our local engineers to have to learn UNIX, so we looked for another Optivity platform that would work with PCs and found HP OpenView for Windows."

The mixed platform solution satisfied all of Davis' requirements except two: "NetManager, Optivity and OpenView [each] have some type of discovery tool that looks at devices on the network and displays them in a nice map. What they lacked was an internal database. There was no way to take the data on the map and convert it into a design document containing information like device names, serial numbers, configuration information, cabling and so forth."

Davis' quest for an add-in product to provide a design database led him to NetSuite Development. "We found out that NetSuite Development had a tool, NetSuite Professional Audit, that would use HP OpenView data to create a database that we could use with the NetSuite Design package. We used the NetSuite Audit probe for HP OpenView to gather information collected by HP OpenView. We combined this data with additional information we obtained using other probes from NetSuite for Simplified Network Management Protocol (SNMP) and Microsoft Systems Management Server. Then, with all of this data, we were able to create a topology map with its icons linked to a database that provided information about network devices down to the port level."

With a new headquarters building being designed in Plano, Texas, NetSuite Professional Design is helping to work out cabling requirements. "With the Audit tool, we have created a comprehensive database of our network from hub chassis to individual feature cards. When we enter a cabling plan, the Design tool uses this database and validates the cabling plan. It actually gives us a warning if the wrong cable is selected for a given configuration

WEBCAST — THE NEXT GENERATION?

Is the modern business enterprise ready for Web-based network management? Nate Kalowski, vice president of marketing at Frontier Software Development (Chelmsford, Mass.), is betting that it is. In January, Frontier announced WebCast, described as a "Web window" on Frontier NETscout manager, the NMS vendor's suite of monitoring, reporting and troubleshooting capabilities for enterprisewide network traffic. As with many NMS vendor Web interfaces, WebCast provides access to NETscout Manager through common Web browser software.

What makes WebCast unique is that it provides more than report display and alarm monitoring capabilities. According to Kalowski, the product actually gives network administrators location-independent management capabilities. Administrators can use WebCast to configure probes and agents on a network or edit agent configurations through a Web browser. A Web-based approach to the NMS console cuts both product cost and training requirements. Kalowski contends that WebCast software and a Web browser used with any desktop computer provides the capabilities of a dedicated NMS console for about 3 percent of the cost. Because the product works through universally-familiar Web browsers, training requirements are also reduced.

Concerns about the security of Web-based network management are addressed through embedded security features within the product. A security facility enables the administrator to set up user and group authorizations and to restrict user access to alarms, reports and SQL database inquiries. WebCast depends on a proprietary EnterpriseRMON — a superset of RMON 1 and RMON 2 — for its network data. The EnterpriseRMON is polled at intervals set by the network administrator and data is assembled into daily, weekly or monthly reports. This reduces the amount of traffic generated by the network management solution and enables the scheduling of reporting traffic with network availability.

Additional Java-based traps and alarms are integrated to alert administrators to current or potential network problems. A simple form can be used for conducting customized queries and generating ad hoc reports. Kalowski notes that "early implementers are already using it for configuration management and reporting — from anywhere in the enterprise."

— JWT

based on interfaces or bandwidth requirements. The program database knows what we have."

In addition to design databases, the other management-related capability that Davis has added into his NMS solution is trend analysis. "A lot of the products provide good, up-to-the-minute status information, but we also needed the ability to view network trends over time. This wasn't available on our platforms, so we needed to find a third-party product. Concord Communications' Network Health product fit that requirement. It does RMON polling of hubs and routers and other network elements, then posts the results to a Web page on our intranet. It also shows about four weeks of trend data."

Davis says he is excited about Web technology as a future direction for network management at Fina, "Optivity 7.1 is supposed to have a browser interface and NetSuite will be providing a browser-based query facility that we can use. Ultimately, I expect to be able to do remote control and management of network devices using our network management platform."

Davis says that security will not be an issue for Web-based network management because he will be able to set up user accounts that constrain what operators will be able to do when they access the homepage. However, he doubts that all of the tools for managing the network will ever appear on a single Web page. "I doubt that the vendors will cooperate. Device vendors don't seem to be willing to share information, like device MIBs, with the platform vendors."

NMS Umbrella

Andy Vanagunas, HP's OpenView Program manager, says that the themes of the present NMS market are diversity and integration. "End users have different philosophies and requirements. Some want centralized management. Some want regionalized management. And still others want a hybrid of the two. HP OpenView is flexible enough to meet everyone's needs." Flexible enough because HP OpenView is actually an umbrella name for more than 30 products.

Network Node Manager (NNM) is at the core of OpenView. "[NNM] provides SNMP discovery, maps and so forth. Because customers are seeking to manage systems as well as network devices, we have expanded the functionality of NNM with distributed systems management products such as IT/Operations for systems console functions, IT/Administration for configuration and change management functions, and PerfView for systems performance monitoring and capacity planning. We also offer additional functionality by enabling partner products to plug into our console. We have a huge list of partners."

HP OpenView is actually an umbrella name for more than 30 products with Network Node Manager (NNM) at the core.

Joe Massey won't argue. Massey, director of Spectrum Platform Development for Cabletron Systems (Rochester, N.H.), agrees that customers want to use the network [or systems] management platform as a consolidation point. "More and more companies are consolidating technologies for voice, video and data. At the same time, they are attempting to consolidate management to create a single point of problem reporting. They want highly integrated solutions, not a system management system and a network management tool. They don't want two helpdesks."

A step in this direction was the announcement in late 1996 of an "out-of-the-box integration" between Cabletron's Spectrum NMS product and Computer Associates' (Islandia, N.Y.) CA-Unicenter systems management solution. According to Massey, the intent of the alliance was to capitalize on the strengths of each product in a complementary manner and to facilitate the integration of the two management consoles for cross-platform event notification.

At Cabletron Systems, Mike Soper, manager of Spectrum Applications, points out that integration can happen in three places: at the menu or GUI level; at the alarm or event level; or something called knowledge base integration. At the GUI level, a selected management console serves as a convenience point from which you can launch a third-party tool. "This may be as simple as adding an icon for the other application, or it may entail adding some kind of contextual sensitivity so that launching the other application places you at a relevant screen, and not at the opening screen where you sit wondering what to do next."

At the alarm or event level, event alerts from Spectrum are visible in the Unicenter console and vice versa. "It is up to the customer to decide whether he wants to run the NMS or SMS console. Or he can have both." Cabletron extends a knowledge-base integration to its partners. Knowledge base integration may consist of the customization of generic MIB data to include the details of third-party devices so that the devices can be more accurately monitored and reported. Another way to integrate with the Spectrum knowledge base is through Spectrum's standard set of application programming interfaces (API). According to Soper, the integration of Spectrum and CA-Unicenter occurs on the first two levels of GUI and event/alarm correlation. To simplify the integration process, both CA and Cabletron provide a script that automatically sets up the other vendor's product for interoperation.

The Case For Independence

Not all integrations are as smooth as the CA-Cabletron scenario. Occasionally, cooperative efforts fall prey to religious debates over the rela-

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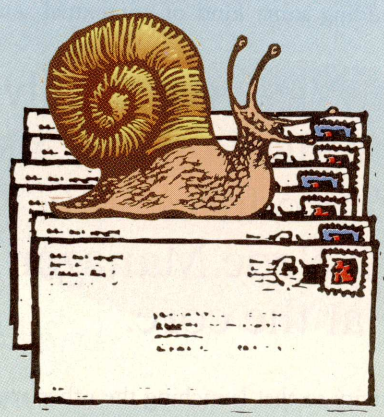

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tive superiority of network or systems management perspectives on enterprise management. Wayne Morris, director of strategic development at BMC Corp. (Houston, Texas) dismisses "the framework wars" and states that his company's Patrol product family is "console independent." Intelligent agents reside on servers and are selected according to the operating system of the server that is to be managed. Once installed, the agent starts up and begins monitoring.

Knowledge modules (KM) contain expertise about how to manage the object or elements where the agent has been installed. The KM provides rules and parameters that instruct the agent about what is to be monitored and what actions need to be taken under what conditions. An optional Patrol Console is available to companies that do not elect to interface the product to their existing NMS or SMS platforms.

Morris contends that agents provide true decentralized management. When conditions for an action are met, the agent automatically takes the recommended action (for example, a system restart). The results of the action are recorded or reported to a management console in accordance with the instructions contained in the agent's KM. "Agent-to-agent communication is also possible. The agent can pull event information from other agents to capture interrelated information. But the objective is to fix problems as close to the source of the problem as possible," Morris says.

Morris states that BMC partners include most NMS and SMS vendors as well as client-server software vendors such as SAP, PeopleSoft, Software AG and others. Digital sells the product with Alpha servers, while HP and other server vendors license BMC Patrol technology and re-brand it for sale through their professional services organizations.

> Web-based solutions entail far less complexity and expense than do current NMS and SMS platforms.

NMS To The Web?

In addition to its interface with popular NMS and SMS platforms and its own Patrol Console product, BMC also offers a Web-based reporting product called Patrol Watch. BMC and many other vendors have pursued Web technology, in part, to differentiate their products from those of competitors. As Fina's Davis observed, browser-based network management has great appeal for those who work with distributed network environments.

HP has not jumped on the Web bandwagon — yet — and Vanagunas offers an explanation. "From our perspective, there is still a lot of flux out there. There are new protocols — HMMP/HMMS and JMAP from Sun Microsystems, for example — and we are not sure that a Web-based solution today will be as complete as one in the near future. We help drive the standards process, but we also have a huge install base, so we have to walk a fine line."

Cabletron has added a Web-based view of alarms and reports to its latest revision. But, according to Massey, that will probably be the most functionality that will be ported to the Web for now. "In selecting the best approach to Web technologies, we have had to separate the hype from the need. We asked, 'What value could Web access add to our platform?' We determined that a Web interface offered high portability and a high degree of data dissemination. We added an alarms and reports Web interface to the Spectrum platform to facilitate the CEO, CIO or CFO's needs for information. The costs of capital to build an intranet or enterprise net for a company are huge. Our reporting package provides information to senior management on how well the investment is being used."

Beyond reporting, Massey is skeptical about Web-based enterprise management. "Security is an issue. Our customers are still squeamish about

putting the capability to control, manage or reconfigure network devices out on a Web site. Even in the case of alarm monitoring, Web technologies do not offer tremendous performance levels; Graphical data is slow. So, placing real-time network data on a Web interface is not the best way to provide the network manager with a management view. Conversely, removing the graphical data reduces the usefulness of the information. We think our strategy maximizes the utility while minimizing the hype."

Massey's view is echoed by many vendors of NMS and SMS products. However, some, including Yogesh Gupta, senior vice president of product strategy for Computer Associates, see a bright future for the Web in enterprise management. Gupta predicts that the company's flagship enterprise management product, CA-Unicenter, will offer full Web-based management by the end of the year. Today, the most important Web-based function of the CA enterprise management solution is its Advanced Help Desk.

"The Advanced Help Desk is browser-based. Users can forward questions or problem reports to a technical support department by completing a form on a Web page. The form is then processed according to company support procedures."

To support future implementations of Web-based functionality for CA-Unicenter, Gupta claims that the company is working on security enhancements, "We believe in open, Web-based management. The problem is that it has to be secure. We are looking at securing information from our intelligent agents and managers through a special tunneling technique. That way, SNMP and agent data can go through firewalls and be accessed only by authorized individuals."

TRADITIONALISTS CONTINUE TO argue that Web technologies are too immature to entrust with mission critical applications like network and systems management. Integration around a platform, or an integrated set of platforms, remains the most stable and secure option available at present.

The truth of this assertion is already being tested by end users who seem quick to try Web-based solutions that entail far less complexity and expense in equipment and training than do current NMS and SMS platforms. More than a few vendors are watching to see who makes the next move.

— Jon William Toigo is an independent writer and consultant. He can be reached at jtoigo@intnet.net.

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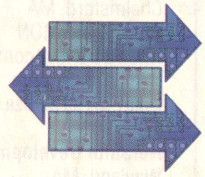

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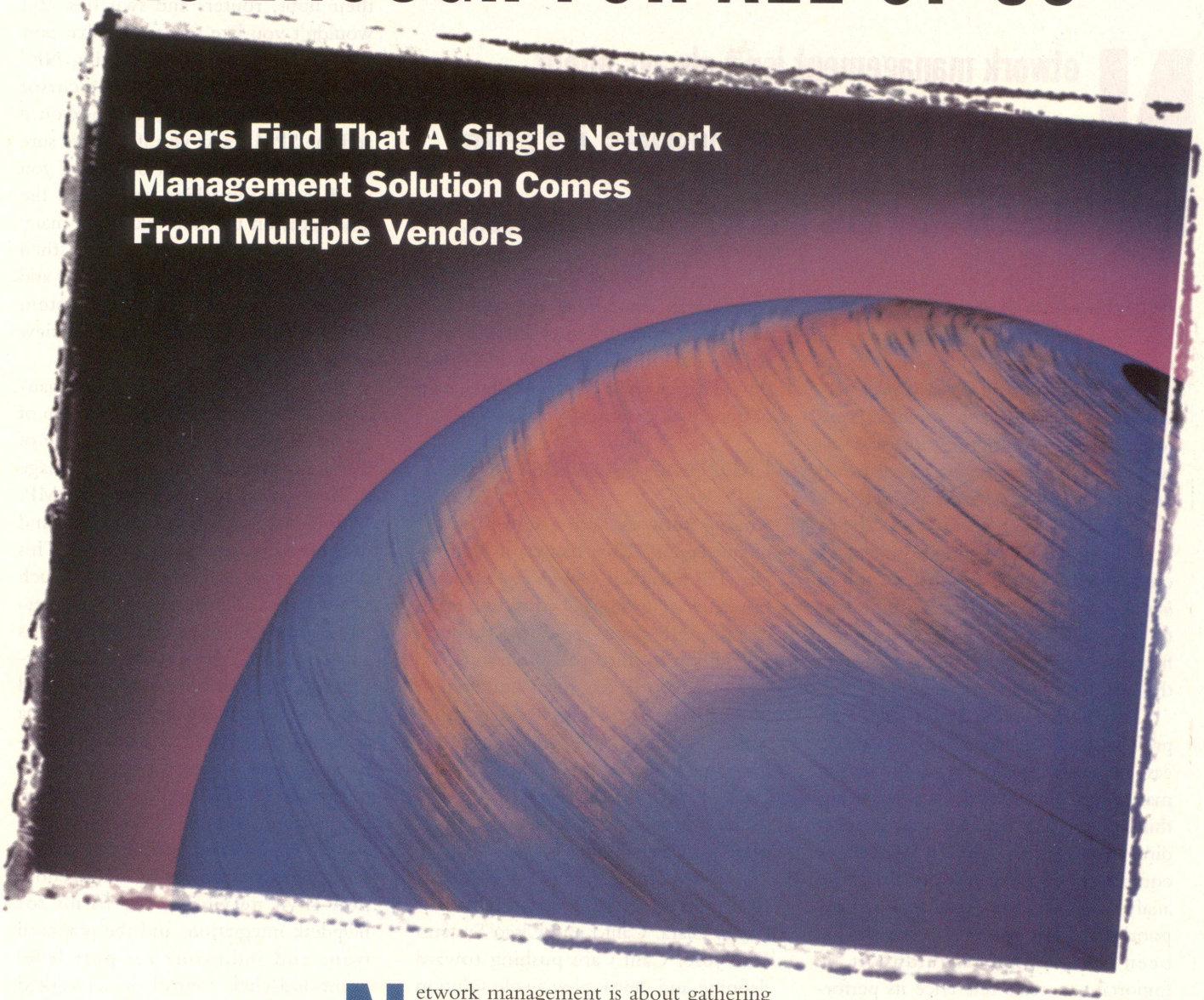


By Greg Barnes

Network management is about gathering meaningful information from network equipment. That's a simple enough concept to grasp, isn't it? And network management also supposedly eases the difficulties associated with physically checking every desktop, server, router and every other piece of networked hardware. A task which is usually impossible in many network management/systems management (NM/SM) environments. Yet complex and multi-platform networks requiring large numbers of well-trained support personnel are contributing to the delinquency of network managers.

NM technicians often have to rely on several suites of NM software to manage one network. This is growing to be more of a source of frustration for these technicians, as well as the companies that have to pay for their training. One method of reform might

be to put pressure on NM system vendors like HP to come up with a Total Network Management Platform (TNMP). OK, so what's a TNMP? A TNMP is a single, shrink-wrapped application that allows native control over networked equipment.

A TNMP, therefore, should provide a detailed graphical representation of the equipment it manages — for example, front panel LEDs, port status indicators and accurate chassis layout. It also should provide an at-a-glance network health assessment, audible alarms to hardware faults (not just link loss status) and a back-end port to relational helpdesk databases. After all, network management isn't always about improving the way we do business, it's often about making sure that we still *do business*. So isn't it at least as important to demand a seamless exporting of data from the network management area to the helpdesk operations area?

Network management isn't always about improving the way we do business, it's often about making sure that we still do business.

The TNMP should also ship with preformatted, but modifiable, forms to ease helpdesk integration, so the person managing the network can do something novel, like report a trouble ticket directly to the helpdesk. Or what about equipment data repositories for trend analysis, so we can visualize just how poorly that last router we bought has been performing? Wouldn't it be important to cross reference its performance with the number and type of trouble tickets we have received in the last two months from the department that the router most directly serves? The TNMP will have native scalability and distributed management options (the ability to have multiple network management systems gathering and reporting data to a single master database), and native support for discovery of networked devices based on all major network operating system protocols.

Nodes that run purely IPX or Banyan Vines IP should be as readily discoverable and manageable as those that run the (one day to be replaced) IPv4. Now what clear thinking IS manager would rather have five different software suites, each with their own quirks, warranties, upgrade paths and compatibility issues instead of a single package? Lastly the TNMP should be portable to the widest range of operating systems as possible.

I Manage, Therefore I Am

Among network and system management vendors, it's a matter of philosophy. HP bills their OpenView platform as a generic "umbrella" consisting of 30 or more HP core OpenView products in addition to third-party solutions. To their credit, HP has been building an open platform to which other more vendor-specific NM/SM applications have been written since 1988. By last count, over 300 different third-party solution providers write to and are certified for OpenView.

On the other hand, Cabletron (Rochester, N.H.), Bay Networks (Santa Clara, Calif.) and Cisco Systems (San Jose, Calif.) are pushing toward defining and developing single solution provider packages. This philosophy, while not as "open" as HP's, may eventually help these companies increase their market share.

CiscoWorks, a router management product which can double as an "almost complete" network management platform, offers its users the comforts of a runtime version of Sybase and a host of prebuilt, intuitive forms spanning not only equipment needs but software needs and revisions. CiscoWorks also allows "synchronization" of the network management system database, in HP's Network Node Manager's (NNM).

Cabletron's Spectrum Portable Management Applications (SPMA) proponents look pretty with point-and-click graphical management of their hubs, routers and switches. But wouldn't you like to turn off that port on the hub that has a jabbering NIC card attached? Position your cursor over the offending hub, left click once and the SPMA asks you if you are sure that you want to shut it off. Or, if you need to see something other than the link status on the hub, like how many bits are spilling through that port, then right click over that very same port and you have an intuitive menu system from which to choose your next view of the data.

Outlook, a Banyan Vines net management application that runs on top of the PC version of OpenView is one of the only ways to discover and manage a Vines-based network with SNMP. Unfortunately, it lacks scalability and distributed management options. This doesn't appear to bother Banyan much as they have a proprietary Vines network management product that ships as an option for their servers. But unfortunately, Banyan only has Vines-based products. And that's too bad, because a company that developed such a powerful wide area capable network operating system (NOS) should be able to see the possibilities in the NMS market.

HP OpenView still lacks direct management capability of homogenous non-IPv4 networks, the forms for helpdesk integration, and the graphical front end indicators for port level point-and-click control of networked equipment. HP has a product called NetMetrix that closes the loop on some of NNM 4.1's deficiencies, but it's sold separately.

So besides combining the best of each of these products into one cohesive application, what is needed to complete these platforms? One thing we need more of in a network management platform like HP OpenView is control. SNMPv2 should help pro-

vide some of that once it's full complement of abilities has come to fruition.

Control Freaks

With the advent of SNMPv2 and the completion of the security aspects incorporated into its structure (at the time of this writing, the security aspects were still in draft with the IETF), there is a more realizable possibility of incorporating more control into the Internet standard MIB specification. Originally, only "weak" controls were added to compensate for SNMPv1's lack of security features. Though some equipment vendors have included increased object control into their private MIBs, this should not be used as an excuse for a lack of standardization.

How many times have we heard a request from a network manager for directions to a MIB II object defining bandwidth usage across equipment backplanes and interfaces? Currently many users subtract average throughput figures from theoretical unqualified bandwidth to develop in-house usage breakdowns. Although there are private MIB objects which gather such instances, there isn't one defined in the MIB II interfaces group.

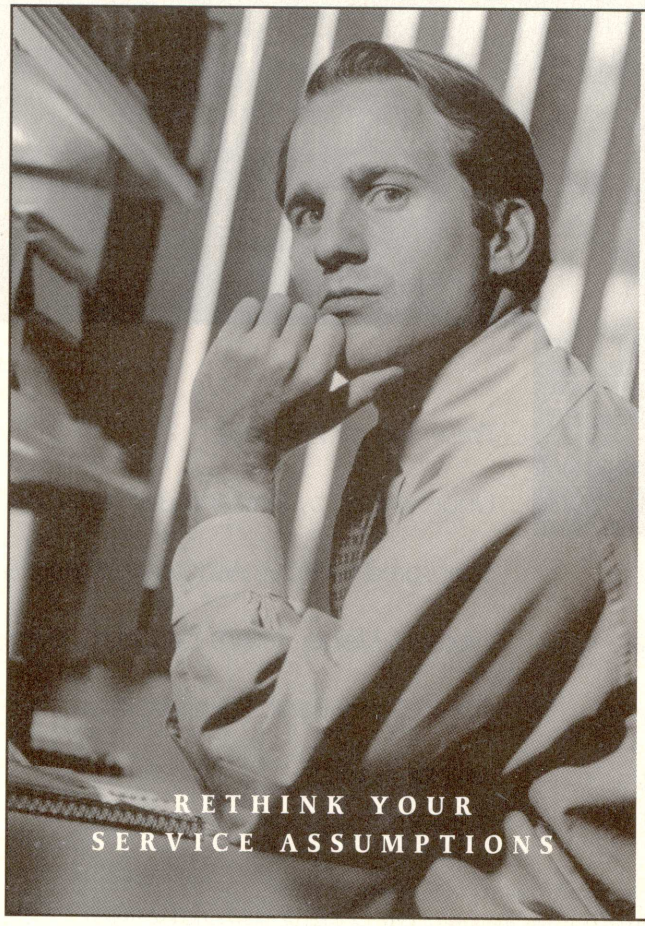
These expansions to MIB II would most definitely allow network managers the ability to leverage their capital investments in non-vendor-specific network management products like HP OpenView toward more powerful point-and-click control of their managed equipment. However, until the IETF solidifies SNMPv2 security standards, the NM community will have to accept currently defined "weak controls" or stick with private MIBs. In the meantime, IT managers are turning to management by the desktop. And any network management platform that wishes to compete for the business generated by that requirement should be able to communicate natively with the NOS protocol of choice.

The success of SNMP in the TCP/IP environment has led to its deployment in non-TCP/IP-based Internets. Banyan Vines-, SNA-, DECnet-, OSI-, Appletalk- and IPX-based internetworks provide similar transport services to TCP/IP's UDP transport. As designed, SNMP is capable of running over any reasonable transport mechanism, not necessarily a transport protocol, that supports bi-directional flow and addressability. Yet, SNMP remains unsupported on HP's NNM 4.1 platform.

The corporate MAN/WAN is a network that is tough to control. Without the strictest of MIS departments and pragmatic control at the client level, it is not hard to envision small pockets of varied applications, TCP/IP implementations, and yes, sometimes even NOSes. Network management teams must use this and other reasoning to control the protocols they have to support if, when and where possible.

During the last two years, the Internet has been mass produced,

(continued on page 33)



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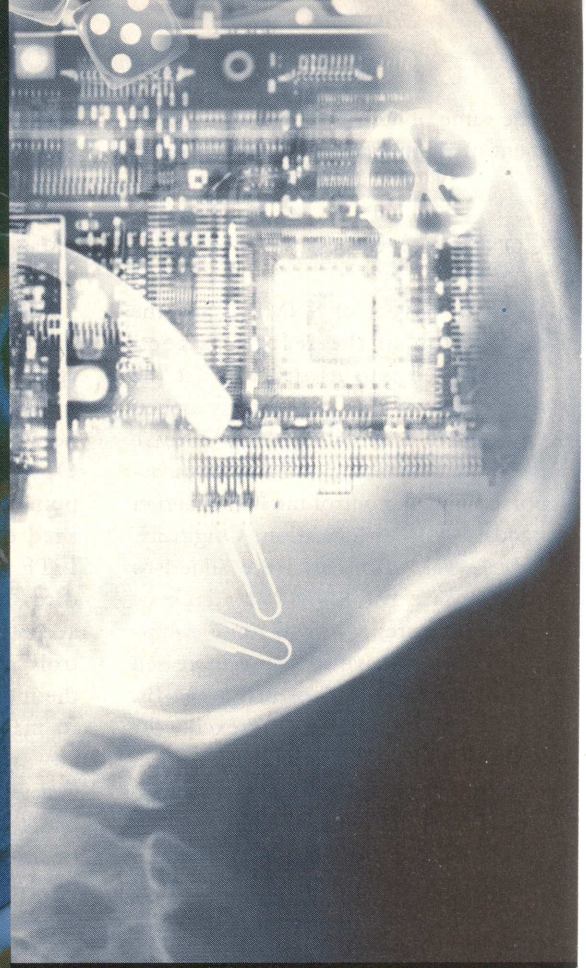

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shrink-wrapped, bottled, boxed, advertised, plugged and labeled. One of the sad results of this trend is a rapidly decreasing available address space for IPv4. Many larger corporations view IPng (IPv4's successor) with distrust and may not be altogether happy to jump on board that wagon unless there is a definable corporate benefit. Meanwhile, as corporations add more and more addressable nodes (routers/hubs/bridges/switches/computers) to their inventory, they will find it increasingly difficult to manage them unless network management applications like NNM 4.1 support non-TCP/IP-based discovery and management of networked hardware.

The problems addressed in this article simply can't be resolved by any one vendor. HP would do well to provide a bundled NMS, with forms, front panel point-and-click control, increase support for non-TCP/IP discovery of networked equipment, and while they're at it, add Sybase to the list of relational databases supported. As more and more organizations begin to manage equipment requiring unique network layer addresses, there will be problems that will have to be directly addressed or circumvented.

That conclusion notwithstanding, as the range of assignable IPv4 addresses becomes harder and harder to come by, and as Internet standard MIBs are developed to incorporate a wider range of control, the pressure from IT customers could force the hand of NMS providers like HP to open up their management solutions to allow direct management across a wider range of protocols.

—Greg Barnes, HP Professional's Networking columnist, thanks Mike Monts, Mark Parker, Richard Rogers for their help with this article. He can be reached at greg@webnology.com.

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Fred Mallett

Shell Games

They say that history repeats itself. But sometimes I think it's just me. Because I often travel to different sites to teach classes, I deal with many different kinds of "typists." You've probably heard all the names, from the "one finger seekers" to the "fast finger flyers" that type so fast they can stop to sip a beer between paragraphs while the characters never stop appearing on the screen because the keyboard buffer is full.

Now, you would think that some of these typists would use the shell's history feature and let the shell repeat the keystrokes for them. But noooo! Many just retype. And that's why I am always repeating myself.

OK, so I'm exaggerating a bit. About 5 percent to 10 percent of my students are proficient in using the shell history, or command recall features. Most others say they know about the shell history feature, but never remember to use it. And for an instructor like myself, that's really painful to observe.

You type **/opt/applixation/bin/prog1**, but you meant to type **application**. You can quickly fix it with a history substitution or a command recall, or by retyping. Fix this error in the C shell like this:

```
^x^c
```

and the Korn shell like this:

```
r x=c
```

The ^ symbol means to re-invoke the previous command with a string substitution. Next comes the string to be replaced, followed by the replacement string, separated by another ^. Thus, the format for this could be written as:

```
^old-string^new-string
```

In the C shell, the ^ character is a meta-character, not really a command. The same is true for **tcsh** users. Note also that in the Korn shell, **r** is an alias that invokes a history allowing a substitution option. Here, the equal sign separates old string from new string. So let's suppose you entered the following commands:

```
cd /opt/gnu/app-defaults
vi some-config-file
```

You get a "file not found error," or the wrong file comes up. After thinking about this for a while, you notice you went to the wrong directory. It was supposed to be /opt/gnu-emacs/app-defaults.

This is easily fixed in the Korn shell:

```
r u=u-emacs -2
r vi
```

We already discussed the **r** and **=** meanings, the **-2** means to act on the command entered two lines ago. We could have also specified a command number, as shown by the history command, or if we had the command number in the prompt.

The **r vi** re-invokes the last command that starts with **vi**. This is not quite as easy in the C shell, because ^ only works on the previous command. That means we need to make the **cd** command the previous command, but we don't really need to execute it. This will work:

```
!-2:p ^u^u-emacs
!vi
```

You should see the similarity. The first line brings back the **cd** command, but the **:p** means don't execute it, just print it (thus making it the previous command). The ^ does the fix, and the **!vi** re-executes the **vi** command, but now we are in the correct directory.

Remember that these are simple string substitutions, and they always make the first match in the string. So, consider this command:

```
/usr/lib/X11/lsfonts
```

But the program was really called **xlsfonts**. If we tried the following command:

```
r l=xl
```

it would have still tried to execute **/usr/xlib/X11/lsfonts** because the first **l** was matched. The correct replacement would have been:

```
r /l=/xl
```

Just remembering these three simple history features can add up to a big time savings. The three were "command re-invoke," "command recall without execution (csh)" and "command string substitution." However, the problem will keep repeating itself

unless you make it a habit to use them. Or am I repeating myself yet again.

HISTORY REPEATS ITSELF?

Life is tough enough for system administrators. They are supposed to be the best at tweaking (or is that geeking) and operating systems. I think this is why HP, or maybe the UNIX95 committee decided to throw us a curve ball with HP-UX 10.20. Root must use /sbin/sh as the default login shell, as it is staticly linked, and thus can run without /usr/lib being mounted. This is needed when there is a problem with volume groups or the root disk.

You must be able to login and issue shell commands from the single user level to fix things. The problem is that the /sbin/sh shell does not like to use history. Or am I repeating history? The following sequence has been seen by most people with root rights on the newer releases:

```
r
/sbin/sh: fc: Cannot access
or open the history file.
```

Most people I have back seat driven for just live with it. You don't have to. The fix is easy. Just set the **HISTFILE** variable in your Korn shell startup files, or even on the command line as the example below:

```
export HISTFILE=/.sh_history r -2 ls
```

After the **HISTFILE** variable was set, the **r** command worked fine, and invoked **ls**. This is a simple fix. But to be honest, I don't know the cause of the problem.

A new issue for me was the difference between "nodename" and "hostname." Actually, the issue lies in the fact that there *cannot be a difference between nodename and hostname.* These two commands better return the same value:

```
uname -n
hostname
```

On HP-UX 9.x, it did not seem to make much difference. I often used the **uname -S newname** command to change the nodename. And as long as the hostname matched the IP address, the nodename did not seem to be used by much except UUCP.

Few people remembered to change the nodename after changing the hostname. Again, it does not matter to most programs. The nodename is commonly referred to as "system name" in man pages and UNIX books. Host name is usually called hostname, and is used by TCP/IP-based stuff (i.e., NFS, Telnet, ftp). When using CDE (I did not test VUE) in HP-UX 10.2, if these two do not match, you can't log in. You will get an error about "Unable to initialize, or connect to desktop messaging system."

This is like the HP-UX 9.x HP-VUE problems when the hostname was not set correctly in all files.

So, in summary, the places to update on a host when changing the hostname on HP-UX 9.x:

- /etc/hosts (and other host name lookup location — NIS, DNS)
- /usr/adm/inetd.sec
- /etc/src.sh

But, on HP-UX 10.x:

- /etc/hosts (and other host name lookup location — NIS, DNS)
- /var/adm/inetd.sec
- /etc/rc.config.d/netconf (This sort of replaces /etc/src.sh)
- uname -S or setuname or setup

Other than the different file locations, you *must* set the nodename correctly on HP-UX 10. This is true even if you are not using UUCP, because it is used by the CDE ToolTalk messaging service. Note that there are many more locations on NFSDiskless servers, and could be many more if a system has applications (or system services) configured. This is why we try to avoid renaming hosts after they are fully configured.

You can send your repetitiously repeated messages about history to Fred at frederm@aol.com. *Or check out Fred's not-so-repetitious homepage at* www.famece.com.

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GETTING THE LED OUT

I was asked what the bank of eight LEDs on the front panel of a workstation are for. The person who asked said that the HP Response Center told her the information was not available.

Hmmmmm. Do these lights just appear by magic? Someone had to put them there.

They indicate both powered up activity, and more importantly, indicate hardware failure information at boot time. You can look up the meanings of these LEDs, for various models, in your particular model's *Owners Guide.* Otherwise, these documents can be found on the newer LROM CD-ROMs.

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Greg Barnes

Monkeying Around With IPv6

Adopting new behaviors isn't easy. In the computer industry, new behaviors often occur after a

significant number of vendors and users adopt certain standards. Although getting there takes time, these de facto standards usually move the industry forward. In anthropological circles, they have a name for it — the 100th Monkey Syndrome. It occurs when a significant proportion of any given population (the 100th monkey) adopts a new behavior and that behavior is then adopted by the remaining population.

Well, although the end for IPv4 may not be for another 10 years, there is a worldwide volunteer effort toward developing, testing and deploying IPv6 — IPv4's replacement. So far, the effort has produced a protocol that's suited to your network needs. Unfortunately, they are a small group. Which means, when it comes to IPv6, you'll have to wait awhile before observing the 100th Monkey.

ADDRESSING PROTONS!

The Internet Engineering Task Force (IETF) and other standards bodies have been working on developing a solid framework using the Request for Comments (RFC) process for IPv6 for several years now. The beauty of the RFC process is that the world's foremost experts in the networking field collaborate on solutions and provide constructive feedback to the IETF on implementation shortfalls, design issues and migration strategies.

A few of the key features that the IETF has outlined for a standard implementation of IPv6 are: IPv4 compatibility, multiple addressing architecture support (specifically multicast), security services and high-speed switch adaptability.

Although the shrinking address availability began the drive for IPv6, the additional breathing space it provides pales when compared to the other issues. However, the address space is the one feature of IPv6 that pops into everyone's mind when the topic switches to its IPv6 development.

The mathematical differences alone between 32-bit and 128-bit addressing schemes is staggering. The IPng architecture consists of an addressing scheme that will support the assignment of addresses with four times the number of bits than IPv4 addresses (128 versus 32). For the mathematically inclined out there, this figures to be somewhere in the range of *340,282,366,920,938,463,463,374,607,431,768,211,456.* Theoretically speaking, that's enough addresses to uniquely identify every proton on earth (although I can't imagine why anyone would want to do that).

IPv4 compatibility was one of the first, and arguably the most important, considerations when the IETF was trying to lay down the framework for IPv6. IPv6 allows the tunneling of IPv4 packets through IPv6 endpoints. An additional requirement to support the transition from IPv4 to IPv6 is support for transmission of IPv6 packets between existing IPv4 endpoints. The need to test these processes in real-world environments is what led to the establishment of the "6bone," a worldwide IPv6 testbed. So far, the 6bone has been assembled from a hodgepodge of vendors, educational institutions and ISPs. For more information on the 6bone and its development, check out www-cnr.lbl.gov/6bone.

A CAST OF THREE

IPv6 supports "anycast," "unicast" and "multicast" addressing formats. The anycast (the newest) addressing scheme allows a packet to be addressed to any one of a group of interfaces. IPv4 networks are traditionally unicast — meaning point-to-point. The most exciting of the three, however, is multicast. Because of the point-to-point routing limitation on unicast packets, they are replicated for multiple destinations (like in a multipoint video conference) and it's not hard to see why this might be an inherently inefficient way of doing things.

The multicast architecture does away with this inefficiency by allowing one packet to go to many destinations. There is, however, a small latency problem over high-speed switched IP networks using multicast IP. And although that probably won't be fixed with IPv6, support of this relatively new routing method is critical to the future integration of Voice, Video and Data (VVD) over more traditional networks.

Security hasn't always been a big concern. But increasingly, many organizations are investing in firewall technologies (and in some cases maintain

labor-intensive access lists on their gateway routers) to make their networks secure. IPv6 may solve some security, as well as bandwidth, problems for organizations that wish to continue to restrict outside access to high risk services like NFS and TFTP, but who can't afford the latency tax that's placed on their network traffic by an overburdened firewall or a deep access list.

The support for additional security features through the use of "packet header extensions" provided by IPv6 will allow network architects in the not so distant future to impose security policies on targeted hosts in the network. This key feature alone could leave any high-dollar firewall salesman who works on a commission squirming just a bit. The concept of a firewall is simple and effective, but levies an all-or-nothing security policy on every IPv4 host behind it, as does an access list. The principal advantage of IPv6's security policies is that each host restricts access to IP-based services based on an authentication key contained in an incoming packet.

Support for multicast is critical to the future integration of Voice, Video and Data over more traditional networks.

Requiring this type of authentication on a recurring basis would be one way to nip "session stealing" hack attempts in the bud.

MINDING YOUR Is AND YOUR Ps

What remains to be seen is how much of a performance hit a network would take to use these types of secure IPv6 services. Asynchronous Transfer Mode (ATM) has grown in popularity substantially over the last couple of years. It is said to be an ideal backbone architecture for flat IP networks, but switched Ethernet backbones may overtake ATM in popularity.

Which of the two will be most greatly affected by the introduction of IPv6 and to what effect? ATM stands to gain the most from the implementation of IPv6 largely because Ethernet and Fast Ethernet have proven so popular. They appear to make their own way, despite ATM transfer speeds (155Mbps for ATM versus 10Mbps and 100Mbps for Ethernet or Fast Ethernet). However, to date, there are no ATM IPv6 testbeds.

So what do we do about IPv6, the 6bone testbed and the shrinking IPv4 address space?

The best advice I've heard came from an IPv6 expert: "Go slowly and get a feel for it first." Perhaps attach to the 6bone, then make an informed decision on how quickly you want to implement. Don't pay any attention to that old IPv4 paradigm. It will die out when the 100th monkey adopts IPv6.

Don't let IPv6 make a monkey out of you. Talk to Greg at greg@webnology.com.

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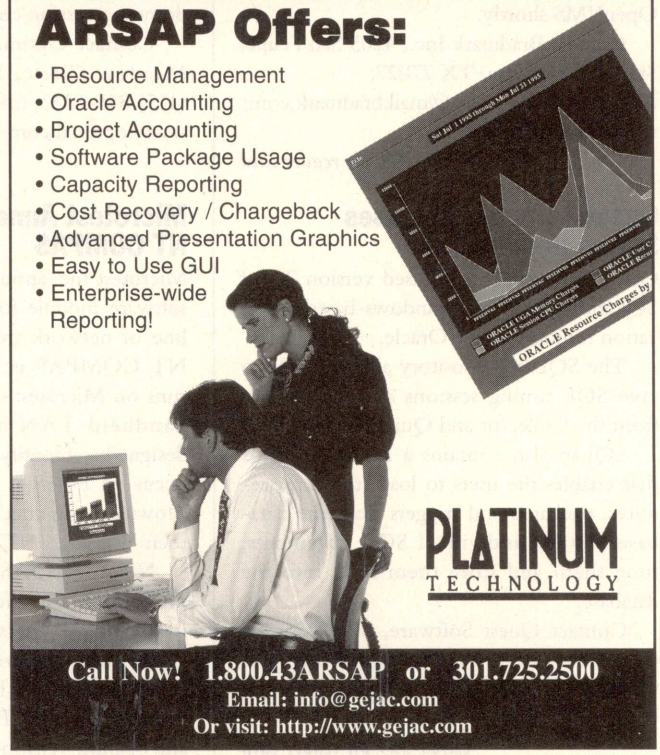

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new Products

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Bradmark Introduces Server Manager V2.0

Bradmark announced DBGENERAL Server Manager for Oracle, a graphical display tool that shows the logical and physical structures of an Oracle tablespace and predicts space problems with trend analysis. It is a toolset for monitoring and tuning Oracle database servers across distributed, enterprise network environments.

Server Manager V2.0 for Oracle ships with native agents for HP-UX, Windows NT (Version 3.51 or later), Windows 95, IBM AIX and Sun Solaris. Server Manager will be available for Digital UNIX and OpenVMS shortly.

Contact Bradmark Inc., 4265 San Felipe, Ste. 800, Houston, TX 77027; (800) 621-2808; nsales@mail.bradmark.com; www.bradmark.com.

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Quest Software Releases SQLab Version 2.0

Quest Software Inc. released version 2.0 of SQLab, its intuitive, windows-based application tuning tool for Oracle.

The SQLab Repository allows DBAs to save SQL tuning sessions and sample sets from the Collector and QuickPick queries.

SQLab also contains a PL/SQL editor that enables the users to load stored procedures, packages and triggers from the database, extract individual SQL statements, tune them and store them back into the database.

Contact Quest Software, 610 Newport Center Dr., Ste. 1400, Newport Beach, CA 92660; (714) 720-1434; info@quests.com; www.quests.com.

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Optimal Internet Monitor Enables Management

Optimal Networks Corp. announced that Optimal Internet Monitor 2.0 enables Internet/intranet application management by measuring the performance of distributed applications to end users with new problem identification, monitoring, trending and alarming features. Optimal Internet Monitor, a packet analyzing application for ftp, Telnet, Domain Name Service, http, POP3 and SMTP, collects, analyzes, alarms and reports on Internet and intranet application traffic over extended periods of time.

Versions of Optimal Internet Monitor are also available in Japanese, French and German. The Optimal Internet Monitor domestic version costs $2,500.

Contact Optimal Networks, 1057 East Meadow Circle, Palo Alto, CA 94303; (415) 845-6333; info@optimal.com; www.optimal.com.

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Microtest Announces NT COMPAS

Microtest Inc. announced NT COMPAS, a software module for its existing COMPAS line of network troubleshooting products. NT COMPAS is a software option that runs on Microtest's NetWare COMPAS, a handheld LAN troubleshooting tool designed to identify common problems that occur on Ethernet networks. The software allows users to check and solve problems on their Windows NT server-based networks.

NT COMPAS is sold as a software module for the NetWare COMPAS base model, and costs $695. The Internet COMPAS software module costs $1,195, or $1,395 when bundled with the NT module. English, French, German, Italian and Spanish versions will be available.

Contact Microtest, 4747 North 22nd St., Phoenix, AZ 85016; (800) 526-9675; info@microtest.com; www.microtest.com

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IBA Provides Internet Consulting

Internet Business Advantages Inc. (IBA) launched a new service offering to provide consulting and systems integration services to companies looking to maximize their business potential via the Internet.

IBA's objective is to help its customers improve customer service and employee support, reducing the time to bring products to market, and selling goods and services electronically.

The IBA process includes the development and implementation of a detailed design specification, hardware, software and networking requirements and integration services.

Contact IBA, 3 Burlington Woods, Burlington, MA 01803; (617) 272-3344; info@ibaconsulting.com; www.ibaconsulting.com.

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Tower Concepts Delivers Razor

Tower Concepts Inc. announced the availability of Version 4.1 of their Razor product. A key element of the release is the seamless and full support of Windows NT and Windows 95 clients to the UNIX-based database server for the file version control and release management aspects of the tool.

Razor is an integrated tool suite which offers problem tracking and configuration management.

Contact Tower Concepts, 103 Sylvan Way, New Hartford, NY 13413; (315) 724-3540; www-sales@tower.com; www.tower.com.

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Walker Debuts Y2K Service Solutions

Walker Interactive Systems Inc. introduced end-to-end Year 2000 service solutions for mainframe financial business systems.

Incorporating tools from Viasoft, Walker's new solution services encompass year 2000 assessment, fix-or-replace analysis, planning and implementation. All of Walker's Tamaris C/S enterprise client-server finance and administration applications are Year 2000-compliant. Viasoft tools provide resource estimation, application understanding and measurement, program editing, bridging, re-engineering,

documentation, testing, debugging and system date simulation.

Contact Walker Interactive Systems, 303 Second St., San Francisco, CA 94107; (800) PICK-WALKER; info@walker.com; www.walker.com.

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OPS Redesigns RoboMap For OpenView

Onion Peel Software (OPS) announced a redesign of RoboMap for OpenView. The original RoboMap allows scripted map customizations, customized map backups, map synchronizations and map movement between computers and different operating systems.

V2 addresses submap contexts, hidden objects, unmanaged objects, delta hiding, delta deleting, executable icons, improved end-user interface and compression of image files.

Contact Onion Peel Software, 4208 Six Forks Rd., Ste. 246, Raleigh, NC 27609; (919) 571-7910; sales@ops.com; www.ops.com.

Circle 393 on reader card

V-Systems Inc. Enhances VSI-FAX

V-Systems Inc. announced the addition of a Windows NT client to its VSI-FAX Network Fax Software. Other supported clients include Windows 3.x, Windows 95, X Windows/Motif workstations and character terminals. With the new client, users can send, receive, view, route and archive faxes automatically from any Windows NT workstation networked with a VSI-FAX Server. VSI-FAX also enables firms to integrate fax capability directly within their UNIX applications.

VSI-FAX host software costs $995. VSI-FAX Client for Windows NT starts at $49.

Contact V-Systems Inc., 32232 Paseo Adelanto, Ste. 100, San Juan Capistrano, CA 92675; (714) 489-8778; info@vsi.com; www.vsifax.com.

Circle 391 on reader card

Novadigm, Legato Sign Agreement

Novadigm Inc. announced that its Enterprise Desktop Manager (EDM) software management product was selected by Legato Systems for integration into its new storage management system, Global Enterprise Management of Storage (GEMS).

GEMS is a Web browser that relies on Java applets to control, configure and monitor numerous storage management nodes in a distributed environment. The software management functionality provided by EDM enables Legato Systems to automate the distribution and upkeep of its products in customer environments.

Contact Novadigm Inc., One International Blvd., Ste. 200, Mahwah, NJ 07495; (201) 512-1000; daleg@novadigm.com; www.novadigm.com.

Circle 390 on reader card

C-Kermit 6.0 Available

C-Kermit 6.0 is a new release of C-Kermit communications software for HP-UX (all versions from 5.21 to 10.30), as well as all varieties of UNIX, plus VMS, QNX, OS-9, Plan 9, BeOS, AOS/VS and other platforms. It replaces C-Kermit 5A(190) of October 1994, which is pre-installed on HP-UX 10.x platforms by agreement

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Oakland, California 94612
(510) 839-3535
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FAX: (510) 839-2894

CIRCLE 163 ON READER CARD

between HP and the Kermit Project at Columbia University.

C-Kermit is a combined serial and network communication software package offering terminal connection, file transfer, character-set translation and automation through its cross-platform script programming language, which is available not only on all the platforms listed above but also on OS/2, Windows 95, Windows NT, Windows 3.1 and DOS.

Contact The Kermit Project, Columbia University, 612 West 115th St., New York, NY 10025; (212) 854-3703; kermit-orders@columbia.edu; www.columbia.edu/kermit/ck60.html.

Circle 389 on reader card

Alida Inc. Unveils GT Backup

Alida Inc. announced that GT Backup's newest enhancement allows users to employ a command-line interface to execute all GT Backup commands throughout a network from virtually any remote or local PC, Mac or terminal.

GT Backup runs in a client-server environment on UNIX platforms including HP 9000 workstations and servers, IBM RS/6000, SGI Irix and Sun SPARCstations running SunOS and Solaris 2.5. Price is $595 for a single user license.

Contact Alida Inc., 27 McDermott Place, Bergenfield, NJ 07621; (800) 883-GURU; sales@alida.com; main.street.net/alida.

Circle 392 on reader card

Digigami Unveils Plugsy 1.0

Digigami Inc. announced the release of the 32-bit version of Plugsy, a plug-in manager for Netscape Navigator client software. Plugsy eliminates conflicts between different plug-ins by allowing Netscape Navigator users to select plug-ins on a case-by-case basis. Plugsy also can be used to disable plug-ins on a per-MIME-type basis.

Plugsy is available for Windows 95 and Windows NT for $29.95.

Contact Digigami Inc., 624 Broadway, Ste. 200, San Diego, CA 92101; (619) 231-2600; sales@digigami.com; www.digigami.com.

Circle 388 on reader card

Unidata RedBack Now Shipping

Unidata Inc. announced Unidata RedBack, a DBMS-independent toolkit for building transactional Web applications for the Internet and corporate intranets.

RedBack consists of a Windows-based interactive development environment plus middleware services and interfaces to server-based DBMS and application resources. Server components run on Windows NT and a range of UNIX platforms, with interfaces to most third-party Web servers. RedBack applications can be accessed using Netscape Navigator or Microsoft Internet Explorer.

Pricing starts at $3,495.

Contact Unidata Inc., 1099 18th St., Ste. 2200, Denver, CO 80202; (800) UNIDATA; unidata@unidata.com; www.unidata.com.

Circle 374 on reader card

Lucent/MathSoft Announce Rights

MathSoft Inc. announced that it received exclusive rights to the newest version of the object-oriented S programming language from Lucent Technologies. The only language created specifically for data visualization and exploration, statistical modeling and programming with data, S provides an object-oriented environment designed for interactive data discovery and data mining. The licensing agreement grants MathSoft exclusive worldwide rights to develop and distribute products based on S until February 18, 2002.

Contact MathSoft Inc., 1700 Westlake Ave. N., Ste. 500, Seattle, WA 98109; (800) 569-0123; sales-info@mathsoft.com; www.mathsoft.com.

Circle 373 on reader card.

Whisper Technology Offers Whisper FTP Plus

Whisper Technology announced Whisper FTP Plus, an ftp client with full HP 3000 support. It includes an Explorer-like shell for navigating directories and files and a Notepad-like editor for viewing and modifying text files online.

Specific HP 3000 features include editing of numbered files (e.g., COBOL), support of file labels (compatible with WRQ Reflection), support of lockwords, support for Native MPE and POSIX file systems, the ability to stream MPE/iX jobs, MPE security and viewing of HP 3000-specific file information.

Contact Whisper Technology, 25-29 High Street, Leatherhead, Surrey KT22 8AB United Kingdom; 44 1372 360080; sales@whispertech.com; www.whispertech.com.

Circle 371 on reader card

CA Ships Unicenter/AHD

Computer Associates International Inc. (CA) shipped a new version of Unicenter/Advanced Help Desk (AHD) which interfaces with Unicenter TNG. Also, CA shipped a new version of CA-Paradigm Service Desk, which is based on the same underlying core technology but is offered as a standalone product. Both products provide a Web interface and knowledge tool capabilities. AHD and CA-Paradigm Service Desk provide end-to-end service management, from service request to fulfillment.

Versions 3.5 of AHD and CA-Paradigm Service Desk are available on HP-UX, Sun Solaris and IBM AIX platforms.

Contact CA, One Computer Associates Plaza, Islandia, NY 11788; (516) 342-5224; info@cai.com; www.cai.com.

Circle 370 on reader card

Heroix Announces RoboMon V6.1 for UNIX

Heroix Corp. announced RoboMon Version 6.1 for UNIX. New in this release

VMARK Software Creates DataStage

VMARK announced DataStage, an integrated product suite that simplifies and automates the extraction, transformation, integration and maintenance of data from multiple operational sources. DataStage supports Oracle, Microsoft SQL Server, UniVerse, Sybase and Informix, as well as legacy databases.

Stages are visually connected with "links" using a graphical point and click user interface. Users simply: install the DataStage Server in a server directory to create a "project"; use the DataStage Repository Manager to browse, import, enter and edit meta data about data sources and targets; employ the DataStage Designer to visually design one or more "jobs" that define the warehouse process model; and use the DataStage Director to run or schedule jobs, monitor activity, examine statistics, handle exceptions and recover from failures.

Contact VMARK Software, 50 Washington St., Westboro, MA 01581; (508) 366-3888; info@vmark.com; www.vmark.com.

Circle 375 on reader card

is universal database monitoring and problem solving, as well as enhanced support for SNMP-based frameworks such as OpenView and NetView. Heroix's RoboMon software automatically detects and corrects system and application problems for UNIX, Windows NT and OpenVMS data center operations.

Monitoring of databases, such as Oracle, Ingres and Sybase, is provided via the new RoboMon Omni-Collector, which enables system managers to instruct RoboMon to monitor and take actions on problems based on any data that can be generated by the computer system. The Omni-Collector also can look at logs and other files generated by applications to detect and correct problems.

RoboMon for UNIX prices range from $300 to $2,500 per machine.

Contact Heroix Corp., 120 Wells Ave., Newton, MA 02159; (800) 229-6500; info@heroix.com; www.robomon.com.

Circle 369 on reader card

FootPrints Web Helpdesk Makes Its Mark

UniPress Software Inc. announced FootPrints for Windows NT. The Web-based helpdesk system is designed to record and track problems, solutions, bugs, change requests and to make the information available to anyone with access to the Internet or intranet.

The FootPrints Starter Pack includes the server software and three licenses and is priced at $1,995. Additional licenses are available at $495 each. FootPrints requires a Windows NT or UNIX-based Web server and supports all Web browsers. Versions are available for HP-UX, Windows NT, SunOS, Solaris, Digital UNIX, IBM RS/6000 AIX, SGI Irix, SCO UNIX and Linux.

Contact UniPress Software Inc., 2025 Lincoln Hwy., Ste. 209, Edison, NJ 08817; (800) 222-0550; info@unipress.com; www.unipress.com.

Circle 372 on reader card

NA2000 SCAN Provides Year 2000 Solution

New Art Communications released Version 3.0 of NA2000 SCAN, a set of programming language-independent utilities. NA2000 SCAN first finds all of source program files on standalone PCs or LAN networks and then scans them for Year 2000 date-related references. Developers may include their own company- or industry-specific date-related references as well as exclude NA2000-derived date checks. Release 3.0 provides an alpha-by-date-reference cross reference facility. Now developers can find date problems from two perspectives.

NA2000 SCAN costs $895.

Contact New Art Communications, 200 W. 79 St., Ste. 8h, New York, NY 10024; (800) 276-1118; info@business-america.com; www.business-america.com/year2000.

Circle 368 on reader card

Watergate Software Bundles PC-Doctor For Windows NT

Watergate Software announced that its PC-Doctor for Windows NT product — a comprehensive, software-based hardware diagnostic and system information tool — is being bundled with Texas Instrument's TravelMate Series of notebook computers.

Using the NT native Win 32 interface for system-level access to testing and system information, PC-Doctor for Windows NT can be customized to meet specific product development, quality assurance and customer support program needs.

Designed for Windows NT as well as Windows 95, the TravelMate 6050NT offers data protection, easy Internet and intranet access through built-in TCP/IP networking and multitasking. It features a 150MHz Pentium processor, 32MB EDO RAM (expandable to 64MB), 2.1GB hard disk drive, a modular bay, power management capabilities and a 12.1-inch SVGA TFT display.

Contact Watergate Software, 2000 Powell St., Ste. 1200, Emeryville, CA 94608; (510) 596-1770; info@ws.com; www.ws.com

Circle 367 on reader card

ClearSystems Releases NMS-Sync Utility

ClearSystems released its NMS-Sync utility for ClearStats/Lite for Windows NT, a network statistics and trend analysis software. ClearStats/Lite for Windows NT collects SNMP and RMON data, and generates trending reports on utilization, error rates, failures and other network parameters.

ClearStats NMS-Sync Utility currently supports HP's OpenView NMS. It interrogates the OpenView database to collect entities such as networks, segments, nodes (hosts, routers, hubs) and interfaces.

Contact ClearSystems Inc., 4925

New From HP

HP SoftBench WebNotebook — HP announced a project and process access tool that combines Web technology with configuration management (CM) technology, introduced under the code name SoftBench Project: GV, has been named HP SoftBench WebNotebook.

WebNotebook components include: configuration management technology to control all documents and deliverables associated with a software project; Web technology to make the information widely accessible to an organization; and a CM archive containing detailed descriptions of the development process, including policies, procedures, templates and examples of lifecycle deliverables.

Oracle Databases/HP Internet Advisor — HP introduced expert analysis of Oracle distributed relational databases into it's HP Internet Advisor internetwork analysis test tool.

Oracle's TNS (transparent network substrate) protocol defines events that are important to network managers, including connect refuse, TNS marker, connect redirect, slow server response, short dead-connection detect, excessive denied log-on and dedicated server request. The HP Internet Advisor provides expert analysis of all of these Oracle network events. It provides both decode and analysis of Oracle's TNS protocol on Ethernet, Fast Ethernet (switched and duplex), Token Ring and FDDI networks.

The HP Internet Advisor commentator capabilities (HP J3710A) for Oracle relational databases costs $3,150.

Bench-Top Power Supply — HP introduced the HP E3632A, a high-performance bench-top power supply with 120-watt power output for R&D and manufacturing-test environments. The unit features GP-IB programmability; linear, regulated power with dual ranges (0 to 15 volts, 7 amps, and 0 to 30 volts, 4 amps); and low noise.

Price is $995.

For more information, contact your local sales office or call (800) 533-1333.

O'Connor Rd. N., Irving, TX 75062; (972) 541-1771; gen@clearsys.com; www.clearsys.com.

Circle 362 on reader card

Microsoft Produces MCIS Version 1.0

Microsoft Corp. announced that version 1.0 of Microsoft Commercial Internet System (MCIS) is available to commercial service providers. Formerly code-named "Normandy," MCIS is a set of standards-based, commercial-grade server applications that delivers next-generation Internet services for managing and personalizing Web content, enabling electronic commerce, creating virtual communities of interest with rich communication tools and managing distributed membership privileges for those communities. Key MCIS product features include content replication, personalization, membership, address book, locator, mail, news, chat and merchant services.

In addition, independent software vendors including Claremont, HP OpenView IT/O, Kenan Systems Inc., LHS, NetIQ Corp., The Portal Information Network, SunTech Systems Inc. and Tivoli Systems Inc. are developing solutions that complement MCIS and allow customers to integrate MCIS with their existing business applications.

Contact Microsoft, One Microsoft Way, Redmond, WA 98052; (800) 426-9400; www.backoffice.microsoft.com.

Circle 361 on reader card

Trend Micro Announces ServerProtect for NT

Trend Micro Inc. released ServerProtect 4.0 for Windows NT, a virus protection software for file servers. ServerProtect's remote management capabilities allows a system administrator to install its virus protection software from a single console onto hundreds of other servers.

ServerProtect for Windows NT also introduces Cascade Update, a system through which virus pattern files, which must be constantly updated for fuller protection, can be automatically distributed through file transfers among all the servers within a domain.

Pricing for 25 users starts at $495, which includes a free year of virus pattern updates and a 25-user license for PC-cillin for the desktop.

Contact Trend Micro, 20245 Stevens Creek Blvd., Cupertino, CA 95014; (408) 257-1500; sales@trendmicro.com; www.antivirus.com.

Circle 360 on reader card

ArcSoft Introduces Multimedia Email

ArcSoft Inc. announced Multimedia Email, an imaging communications package that creates multimedia postcards for Internet e-mail delivery. The software works with Internet e-mail accounts, and all multimedia postcards are viewable by any recipient running Windows or Windows 95. Multimedia Email comes bundled with ArcSoft PhotoImpression, an easy-to-use photo editor with photo-enhancing tools, special effects, album management and support for acquiring TWAIN images. The bundle is priced at $39.

Contact ArcSoft, 4015 Clipper Ct., Fremont, CA 94538; (800) 762-8657; www.arcsoft.com.

Circle 359 on reader card

HARDWARE

Extended Systems Offers JetEye Net Plus

Extended Systems shipped extended high-speed (Fast IR) drivers with JetEye Net Plus, a wireless infrared network adapter for connecting portable PCs to Ethernet and Token Ring networks. JetEye Net Plus adapters and portable manufacturers support data transfer rates that comply with the Infrared Data Association (IrDA) high-speed communication standard of 4Mbps. Current JetEye users can download the new drivers free of charge from the Extended Systems ftp site.

Contact Extended Systems Inc., 5777 N. Meeker Ave., Boise, ID 83713; (800) 235-7576; info@extendsys.com; www.extendsys.com

Circle 387 on reader card

Addonics Technologies Announces Two CD-ROMs

Addonics Technologies announced two portable CD-ROM drives — the PCMCIA PocketCD and Parallel PocketCD.

In the space of two standard CD jewel cases, the PCMCIA PocketCD contains a 10x speed CD-ROM drive, internal rechargeable batteries, a PC Card interface, a mini headphone jack and controls for audio CD playback. It also can be powered from a laptop computer's battery through its PCMCIA interface or from its internal rechargeable batteries or from an external power adapter (adapter sold separately).

The Parallel PocketCD is the same size and weight and sports the same performance specifications but differs in its power source and standard interface. This drive comes with a 10x speed CD-ROM drive, internal compartment for 4 "AA" batteries, a parallel port interface, a mini headphone jack and controls for audio CD playback.

The 10x PCMCIA PocketCD costs $399. The 10x Parallel PocketCD costs $349. Both drives come with software drivers for DOS, OS/2, Windows 3.1 and Windows 95. In addition, the Parallel PocketCD supports Windows NT.

Contact Addonics Technologies, 48434 Milmont Dr., Fremont, CA 94538; (510) 438-6530; atc@addonics.com ; www.addonics.com.

Circle 383 on reader card

Network General Announces WAN Sniffer Analyzer NB

Network General Corp. announced the WAN Sniffer Analyzer NB for PC-based notebooks. The WAN Sniffer Analyzer NB has the ability to decode WAN frames and encapsulated LAN traffic across a WAN.

The WAN Sniffer Analyzer NB is a portable, lightweight WAN expert protocol analyzer solution designed to quickly isolate and troubleshoot complex LAN protocol problems over WAN internetworks, including traditional router-based interfaces, digital transport links (T1, E1) and frame relay services. Interchangeable hardware Interface Modules provide T1, E1, RS and V.xx interfaces. The external WANbook connects to a standard notebook via a standard PCMCIA Ethernet card providing a high-speed connection.

Contact Network General, 4200 Bohannon Dr., Menlo Park, CA 94025; (800) SNIFFER; sales@ngc.com; www.ngc.com.

Circle 385 on reader card

KOM Inc. Releases OptiStorm 1.0

KOM Inc. announced OptiStorm 1.0, which was designed for Windows NT. Features include: an intelligent caching system providing optional magnetic caching; an API interface "library" SDK Software Kit; daisy chaining; native file system for FAT and NTFS; standard network access from all clients including PC, UNIX, Mac and Power Mac; support for all 5.25- and 12-inch jukeboxes and optical drives; support for WORM and rewritable media regardless of sector size; volume labeling; and backward compatibility with OptiServer-NT.

Contact KOM Inc., 4019 Carling Ave., Kanata, ON K2K 2A3; (613) 599-7205; sales@kominc.com; www.kominc.com.

Circle 382 on reader card

StereoGraphics Designs CrystalEyes

StereoGraphics announced CrystalEyes, a set of wireless stereoscopic glasses that use shuttering lenses made of liquid crystal material. It creates a true 3D environment which allows technical professionals to be more proficient in analyzing and manipulating 3D visual data. CrystalEyes runs on UNIX platforms from HP, Sun, SGI, Digital and IBM, as well as Windows NT on Pentium Pro workstations.

Contact StereoGraphics, 2171 E. Francisco Blvd., San Rafael, CA 94901; (415) 455-1832; sales@crystaleye.com; www.stereographics.com.

Circle 381 on reader card

Best Power Ships New Fortress UPS

Best Power announced the 1020VA and 1420VA versions of its Fortress UPS, which provide no-break sine wave output and include a comprehensive suite of free power management software plus a wide range of power ratings and footprints.

The Check-UPS II Suite is compatible with Novell, UNIX, Windows NT, Windows 95, Windows 3.1, DOS and OS/2. Fortress units are also compatible with SNMP adapters that enable MIS and network managers to remotely manage and control distributed Fortress UPSs and any connected internetworking equipment.

Prices for the Fortress models, including the bundled CheckUPS II power management software and cabling, are $799 for the 1020VA, and $999 for the 1420VA.

Contact Best Power, P.O. Box 280, Necedah, WI 54646; (800) 356-5794; info@bestpower.com; www.bestpower.com.

Circle 384 on reader card

NORDX/CDT Unveils Optimax

NORDX/CDT Inc. introduced a new optical fiber field installable connector — the Optimax SC. The Optimax SC field-installable optical fiber connector can be installed using NORDX/CDT's Optimax Kit.

The Optimax SC Connector is available for multimode 62.5mm fiber and its typical insertion loss is 0.3 dB per mated pair. An installation tool, preparation guide and installation manual are offered for the Optimax SC connector. These three items are now included in the Optimax tool kit. An Optimax SC upgrade kit is available for users who already own an Optimax tool kit.

Contact NORDX/CDT Inc., 105 Marcel-Laurin Blvd., St-Laurent, PQ H4N 2M3; (800) 262-9334; www.nordx.com.

Circle 380 on reader card

Whitetree Signs Ethernet-to-ATM Agreement

Whitetree Inc., Efficient Networks Inc. and General DataComm Inc. announced a cooperative marketing agreement designed to enable users to easily deploy Ethernet-to-ATM and end-to-end ATM networking solutions that include end-to-end quality of service for multimedia applications, scalability and high bandwidth.

With this agreement, users will be able to employ Efficient Network's 25.6Mbps ATM PCI adapter and its ATM155 adapters to provide desktop and server connections. Whitetree's Ethernet and ATM combination switching products will provide connectivity at the departmental level, and GDC will provide the backbone con-

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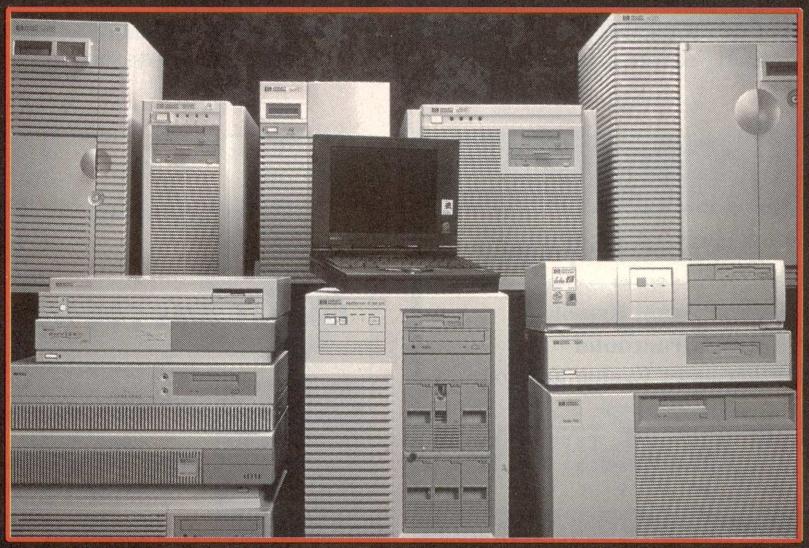

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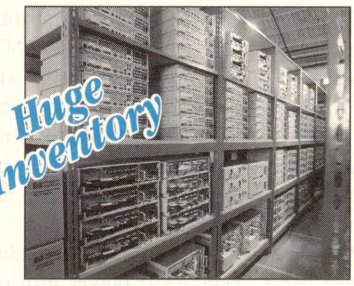

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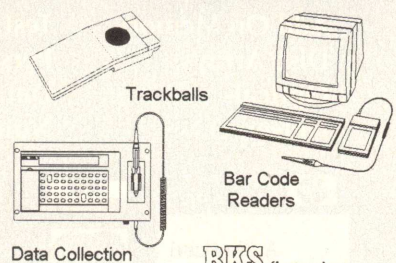

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Ascend Reaches NetWarp Pro

Ascend Communications Inc. expanded its NetWarp family of remote access products to include the NetWarp Pro ISDN terminal adapter, which features a single analog port that provides plain telephone services with full ring and dial tone generation capabilities. Users can connect a phone, fax or answering machine to their NetWarp Pro and simultaneously surf the Internet and make analog calls over a single ISDN BRI line.

NetWarp Pro includes standard plug-and-play as well as automatic switch protocol and line speed detection for installation and setup. Price is $349.

Contact Ascend Communications Inc., One Ascend Plaza, 1701 Harbor Bay Pkwy., Alameda, CA 94502; (800) ASCEND4; info@ascend.com; www.ascend.com.

Circle 378 on reader card

U.S. Design Supports HP DLT Tapes

U.S. Design Corp. announced support for the full family of DLT tape libraries from HP. Models supported are the HP C1191H and the C1194H libraries that provide storage capacity from 560 to 960GB. The initial support is targeted for Digital's Alpha AXP products under OpenVMS.

Tape SuperSTOR allows tape cartridge movement in the library via DCL commands. Future releases will offer transparent operations as well as support for different libraries and on different platforms.

Tape SuperSTOR is available as a software-only product or can be bundled with the U.S. Design family of JB Series tape libraries from HP.

Contact U.S. Design, 9075 Guilford Rd., Columbia, MD 21046; (410) 381-3000; sales@usdesign.com; www.usdesign.com.

Circle 377 on reader card

CyberStorage Systems Offers Ultra 205

CyberStorage Systems announced the release of CyberStorage Ultra 205 RAID system. It provides high-level fault tolerance, with redundant hot-swappable power supplies and fans, as well as dedicated hot spare support. It also adds remote dial-in capability for optional remote monitoring, control and maintenance of systems operations.

Contact CyberStorage Systems, 25 Porter Rd., Littleton, MA 01460; (508) 486-0005; marketing@cyberstorage.com; www.cyberstorage.com.

Circle 376 on reader card

MTI Produces Gladiator RAID Array

MTI Technology Corp. introduced the terabyte-class Gladiator Enterprise Storage System (ESS) 3100.

The Gladiator ESS 3100 can be configured with as little as 137GB of usable capacity attached to a single CPU and still be able to grow to store multiple terabytes in a multihost, heterogeneous computing environment. It also features a network-based GUI management system for monitoring and status/fault notification.

A three-bay Gladiator cabinet can contain nearly 2TB of usable RAID storage while occupying only 16.5 square feet of floor space. Gladiator requires no special power or flooring and will fit into any standard office environment. The storage system is compatible with HP-UX, IBM AIX, SunOS/Solaris, Silicon Graphics Irix, Digital UNIX and Windows NT. A system with 291GB of capacity, 128MB of mirrored write-back cache, 512MB of read cache and eight SCSI-2 differential host connections costs $224,870.

Contact MTI, 4905 E. La Palma Ave., Anaheim, CA 92807; (800) 999-9MTI; info@mti.com; www.mti.com.

Circle 366 on reader card

MGE Unveils New UPS

MGE UPS Systems unveiled several new UPSs. Also announced was the completion of the company's integration of its Topaz, Square D and Pulsar product lines under the new MGE brand name.

MGE completed its Pulsar EX product line for desktop, server and PC network power backup. In addition to its current 7 kVA and 10 kVA products, the company shipped new 15, 20 and 30 kVA Pulsar EX systems. For larger industrial-strength power needs, MGE also expanded its Pulsar EXL product family to include a 5 kVA unit, in addition to the existing 7.5 and 10 kVA systems.

Contact MGE UPS Systems, 1660 Scenic Ave., Costa Mesa, CA 92626; (714) 557-1636; www.mgeups.com.

Circle 365 on reader card

Wave Wireless Introduces SPEEDLAN 10

Wave Wireless Networking announced SPEEDLAN 10, a 10Mbps wireless Ethernet bridge/IP router. SPEEDLAN 10 offers multipoint network capability. Each wireless network link may be managed and its software updated over the Internet. SPEEDLAN 10 is plug and play when implemented with factory settings as a self learning, transparent, MAC layer wireless bridge, but also may be configured as an IP router. SPEEDLAN 10 combines advanced bridge and IP router functionality eliminating the need for an additional remote router in multipoint wireless networks.

SPEEDLAN 10 product starts at $9,500. SPEEDLAN 5, a point-to-point version starts at $5,500.

Contact Wave Wireless Networking, 1748 Independence Blvd., Sarasota, FL 34234; (800) 721-9283; sales@speedlan.com; www.the-wave-wireless.com.

Circle 364 on reader card

Allied Telesyn Announces AT-2560FX

Allied Telesyn announced the AT-2560FX Fiber Fast Ethernet Adapter Cards. The AT 2560FX series of adapter cards fully supports the IEEE 802.3U 100BaseFX Ethernet-over-fiber specification. Featuring self-configuration, the cards support: Windows NT, Windows 95, Windows 3.1 and Windows for Workgroups; Novell NetWare and Personal NetWare; Banyan Vines for client and server; Digital Pathworks; and IBM LAN server.

The AT-2560FX is available in two versions. The AT-2560FX/ST features a twist-on connector for use with existing fiber-optic cable and connectors. The AT-2560FX/SC uses a push-on connector for new cable installations. Both versions cost $449 in single quantities and $8,000 for packages of 20 cards.

Contact Allied Telesyn, 950 Kifer Rd., Sunnyvale, CA 94086; (800) 424-4284; ati_sales@alliedtelesyn.com; www.alliedtelesyn.com.

Circle 363 on reader card

Correction

In the December 1996 issue of *HP Professional*, we erroneously reported in the New Products section that BMC Software Inc. (Houston, Texas) was an authorized distributor of WRQ's Reflection software. In fact, BMC Software Services bv (The Hague/The Netherlands) is the actual distributor of WRQ's Reflection software.

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The Internet, The Browser And Java

Glenn H. Jacobson
President, Unique Systems Inc.

Much has been debated in the past several months about the merits and interoperability of Windows NT and UNIX. However, we are asking ourselves the wrong questions.

Questions about the merits of NT and UNIX are based on the aging premise that software is written for a specific operating system and hardware platform. However, in the 1980s, the first pseudocode systems started to appear to allow software to be moved from one OS and hardware chipset to another, without recompilation. This approach worked fine for the development and running of software on various versions of UNIX.

Enter the popularity of NT as a server platform for client-server systems. UNIX is not NT and NT is not UNIX, and "never the twain shall meet." One common area, TCP/IP networking, does provide print and file sharing. This capability is best implemented through a shareware product called Samba that is available for most UNIX platforms.

But print and file sharing does not solve the larger question of running common software on NT and UNIX. Those pseudocode products that worked for UNIX-to-UNIX porting will not work for UNIX-to-NT porting because there are too many differences in the kernel, message traffic handling and basic utilities. Although the applications software can be ported, the basic services of the OSes are too different for easy porting.

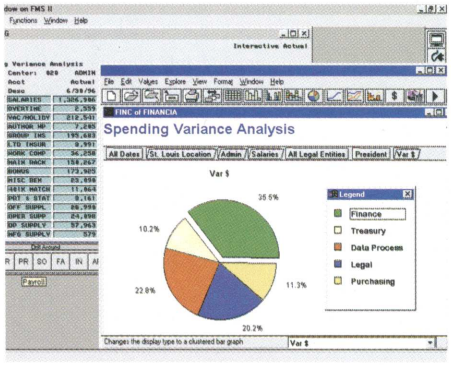
Enter the Internet, the browser and Java. Interoperability on the Internet *requires* a common software platform in order for client-server programs to execute. The browser set the common platform for a user interface, and Java and the Virtual Machine (VM) set the common software platform for business applications. The VM sits on top of the OS and provides a common software platform not only for NT and UNIX, but it's available for most of the OSes on the market. All major software developers in the United States (with one notable exception) have huge browser-based Java projects in the works. However, it will take several years before most of these projects result in software for the market.

So why the big interest in browsers and Java?

- Users prefer the GUI provided by the browser. This interface simulates reading a magazine, rather than a "computer interface," and still allows point-and-click functionality.
- Common interface *and* common software platform, combined with small applets, allow programs to be stored on a server and targeted for client systems, even though the server has no idea or control over the type of client OS or hardware.
- Software developers develop once and deploy anywhere. This allows entrance into the new Internet/intranet markets.
- Availability of browsers off the Internet. This facilitates *applicability* of browsers and Java for Internet and intranet software.
- Security. Java and the Java VM for client-server systems on the Internet.
- Object orientation and the ease of transferring C++ technology to Java.
- Isolation of applications software from changes in OSes and computer hardware. Rapid changes in OSes and hardware has limited the amount of labor and dollars that could be invested in software solutions.

Considering the above, it becomes clear that browsers and Java contain the underlying answers to our questions about the interoperability of computer systems.

With this in mind, the questions we see asked about the interoperability of NT and UNIX are similar to asking if we should purchase our music on a 45 rpm record or an 8-track tape.



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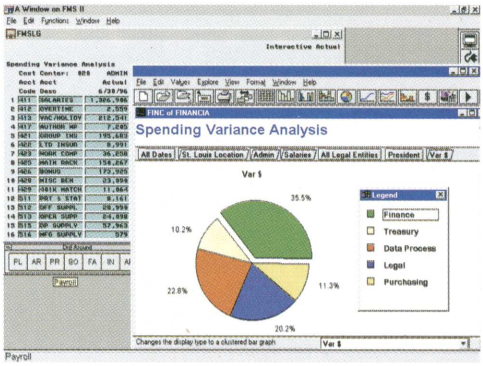

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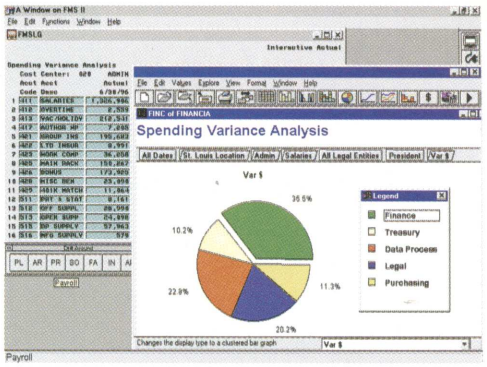

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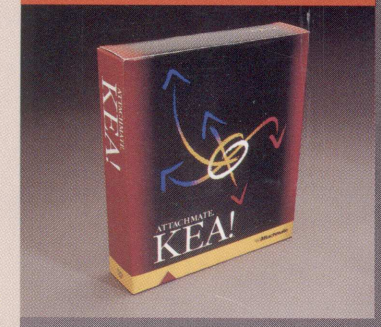

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